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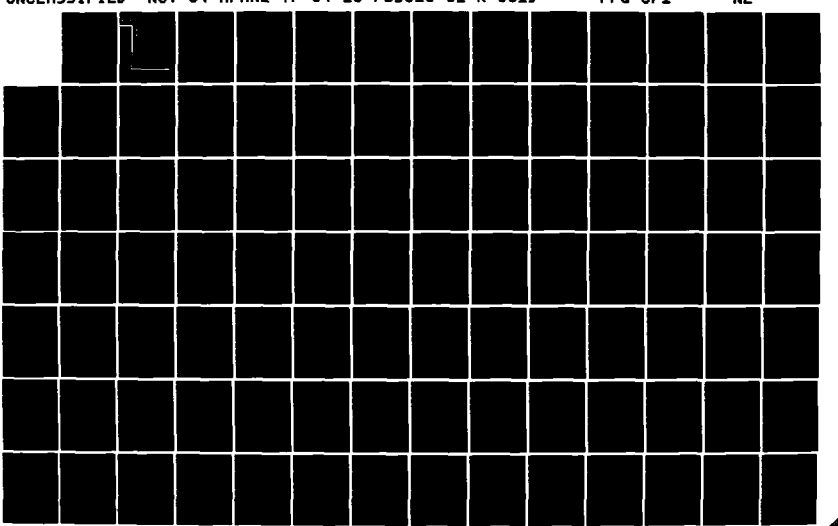

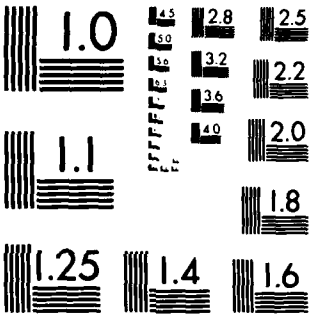

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AIR FORCE HUMAN RESOURCES LABORATORY

SITUATIONAL CONSTRAINTS IN THE AIR FORCE: IDENTIFICATION, MEASUREMENT, AND IMPACT ON WORK OUTCOMES

By

Edward J. O'Connor
Joe R. Eulberg

The University of Texas at Dallas
School of Management
Richardson, Texas 75080

Lawrence H. Peters

Southern Illinois University at Carbondale
Department of Administrative Sciences
Carbondale, Illinois 62901

Thomas W. Watson

MANPOWER AND PERSONNEL DIVISION
Brooks Air Force Base, Texas 78235-5000

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AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235-5000

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WILLIAM E. ALLEY, Technical Director
Manpower and Personnel Division

NANCY GUINN
Chief, Manpower and Personnel Division

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This paper contains the results of a four-phase research and development (R&D) program aimed at exploring the impact of situational constraints on individual work performance, motivation, affective reactions, reenlistment plans and thoughts of leaving among Air Force enlisted personnel in several occupational specialties. In particular, the program was designed to (a) identify constraining work factors typical in Air Force work environments (Phase I), (b) develop and validate a questionnaire to assess the severity of these constraints (Phase II), and (c) utilize that questionnaire to investigate the hypothesized impact of these situational constraints on performance, motivation, affective reactions, reenlistment plans, and thoughts of leaving (Phases III and IV). Results from a content analysis of verbal responses to an open-ended questionnaire in Phase I identified 14 specific dimensions of work constraints. Phase II results supported the psychometric soundness of the constraint scale developed based on the Phase I information. In addition, Phase II results supported the construct validity of this newly developed instrument by demonstrating its empirical relationships to a variety of theoretically appropriate affective reaction variables. Results from Phases III and IV indicated that the mean level of reported constraints was moderate across all seven occupational

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specialties under investigation. Perceived situational constraints failed to consistently correlate with supervisory rated performance or effort, or with self-rated reenlistment plans. In addition, the expected restriction in performance variance was not observed and neither was the individual difference by constraint interactions this variance restriction was hypothesized to produce. Perceived constraints did relate consistently, and moderately, with a variety of affective reaction and motivation variables and less consistently with a variable designed to assess airmen's thoughts of leaving the Air Force. These results indicate that although constraints bear some consistent relationship with a person's internal affect, motivation, and belief states, their impact does not extend to either behavior (i.e., performance) or behavioral intentions (i.e., reenlistment plans). The discussion of these results suggested that since the reported severity of constraints was minimal, their lack of impact on behavior was understandable. The minimal level of constraints observed also suggested that such working conditions do not generally represent a substantive impediment of performance in the Air Force enlisted positions studied. A further discussion of alternative ways of conceptualizing the construct of situational constraints is also presented, along with suggestions for future R&D in this area.

AFHRL Technical Paper 84-10 November 1984

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Edward J. O'Connor
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Southern Illinois University at Carbondale
Department of Administrative Sciences
Carbondale, Illinois 62901

Thomas W. Watson

MANPOWER AND PERSONNEL DIVISION
Brooks Air Force Base, Texas 78235-5000

Reviewed by

Rodger D. Ballentine, Lt Col, USAF
Chief, Productivity and Performance Measurement Function

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R. Bruce Gould
Chief, Force Utilization Branch
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SUMMARY

The current investigation, conducted in four phases, was aimed at identifying, measuring, and assessing the impact of situational constraints in Air Force work settings. In particular, the objectives were (a) to identify situational constraints found in Air Force work environments (Phase I), (b) to develop and validate a questionnaire to assess the severity of these constraints (Phase II), and (c) to utilize that questionnaire to investigate the hypothesized impact of these constraints on performance, affective reactions, and propensity to stay/leave (Phases III & IV). Fourteen constraint dimensions were identified and a valid and reliable constraint scale was developed to measure them. This scale can continue to be used for either R&D or diagnostic purposes. The severity of constraints were found to be relatively mild across the AFSs investigated. Constraints tended to decrease satisfaction while increasing frustration and thoughts of leaving. However, they did not typically increase intent to leave, and had little impact on performance.

PREFACE

This research and development (R&D) program on situational constraints was completed under Project 7734, Force Management System; Task 773408, Personnel Utilization and Retention System. The specific Work Unit, 77340820, is titled Performance Relevant Situational Constraints and involves the identification and assessment of factors which inhibit optimum performance in operational Air Force work settings.

Performance and productivity have long been a concern to Air Force personnel researchers and managers. The Performance Relevant Situational Constraints Work Unit is part of a comprehensive performance and productivity R&D program in which the Air Force Human Resources Laboratory has been involved since the early 1970's. It is also related to other past and present AFHRL R&D programs, such as those concerning occupational attitudes, organizational assessment, and separation/retention decisions. These diverse R&D programs have in common the ultimate goal of enhancing Air Force effectiveness and efficiency in meeting its mission requirements.

Appreciation is expressed to the staff members and/or students of the University of Texas at Dallas, Southern Illinois University at Carbondale, and the Air Force Human Resources Laboratory for their technical and editorial assistance.

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SITUATIONAL CONSTRAINTS IN THE AIR FORCE: IDENTIFICATION, MEASUREMENT, AND IMPACT ON WORK OUTCOMES

I. INTRODUCTION

Considerable research and development (R&D) in both the private and public sectors has been directed toward increasing productivity within organizational settings through improved understanding of the determinants of performance (e.g., Alluisi & Meigs, 1983; Dunnette & Fleishman, 1982; Hunter & Schmidt, 1983; Katzell & Guzzo, 1983; Miner & Brewer, 1976; Tuttle, 1981, 1983; Tuttle, Wilkinson, Gatewood, & Lucke, 1981). Unacceptably low productivity growth rates and intense foreign competition make it imperative that organizations obtain maximum output from their workers. This has encouraged research directed toward identifying and understanding impacts of a variety of performance determinants. Situational constraints (e.g., faulty equipment, inaccurate information, insufficient time) are one type of performance determinant in the immediate work situation which are presumed to interfere with the transition of individual ability and motivation into effective work performance. The present investigation was conducted to identify, measure, and investigate the influence of situational constraints on performance and other work outcomes in Air Force jobs.

Historically, much effort has been directed toward understanding the impact of human abilities (e.g., Dunnette, 1976) and motivation (e.g., Campbell & Pritchard, 1976) on work performance. Substantive progress has been made in accounting for performance variance in terms of ability and motivation (see, for example, Schmidt & Hunter, 1977). However, a more complete understanding of performance variance must await the specification and measurement of additional variables, such as situational constraints, which are presumed to affect performance or to contribute indirectly to performance variance through their interaction with abilities and motivation.

The influence of situational constraints on individual performance has been recognized by many researchers (e.g., Blumberg & Pringle, 1982; Campbell & Pritchard, 1976; Dachler & Mobley, 1973; Ilgen, Fisher, & Taylor, 1979; Schneider, 1978a; Wherry & Bartlett, 1982). However, only recently has their impact on performance been considered within an integrated performance model. In particular, Peters and O'Connor (1980) have presented a model which summarizes hypothesized influences of situational constraints on both performance and affective outcomes.

While many researchers have recognized the potential importance of situational constraints in work settings, empirical work directed toward specifying constraints and assessing their impact on performance and other outcomes has been conspicuously lacking. This does not mean that this area

has been totally neglected. Clearly, effort has focused on relationships between situational variables (e.g., organizational structure or formal extrinsic reward systems) and work outcomes. Much of this work has been based on the belief that situational factors affect performance indirectly, through motivation. The Peters and O'Connor (1980) performance model, in contrast, focuses on more narrowly defined aspects of the immediate work setting which, in addition to influencing motivation, are hypothesized to constrain performance directly by inhibiting the utilization of task-relevant abilities. Their model extends previous efforts by systematically incorporating hypotheses regarding both the direct and indirect impact of situational constraints on performance.

In particular, they hypothesized that situational constraints inhibit the utilization of abilities at work and have their most constraining effect on persons with greater abilities. Thus, constraints were expected to affect performance directly, and to have a differential impact on the performance of individuals with different levels of relevant abilities. Peters and O'Connor (1980) extended this argument to all performance-relevant individual factors relevant to producing variance in performance. Thus, differences in motivation, like differences in abilities, were hypothesized to be differentially related to performance at differing levels of situational constraints. In effect, task-relevant individual differences were expected to affect performance only in work settings where constraints were mild. When severe, constraints were hypothesized to limit the translation of abilities and motivation into performance variance. Peters and O'Connor (1980) further argued that, because constraints would hinder the accomplishment of task goals, their presence would produce dissatisfaction and frustration among persons who valued the attainment of those goals. Since affective outcomes repeatedly have been shown to affect turnover intent and behavior (see, for example, Mobley, Griffeth, Hand, & Meglino, 1979), constraints were also hypothesized to affect organizational withdrawal tendencies (O'Connor, Peters, Rudolf, & Pooyan, 1982).

Prior R&D on Situational Constraints

Laboratory experiments have supported the hypothesis that situational constraints would inhibit performance and impact negatively on employee satisfaction and frustration. Peters, O'Connor, and Rudolf (1980) identified eight categories of situational constraints commonly found in work settings and then simultaneously manipulated four of those variables to create inhibiting and facilitating task settings. Performance was lower for individuals working in the inhibiting condition. These persons also reported being more frustrated and less satisfied than did those in the facilitating condition. In another laboratory study, Peters, Chassie, Lindholm, O'Connor, and Kline (1982) simultaneously manipulated three of the eight constraint factors identified by Peters et al (1980) to create inhibiting and facilitating task settings. They also found lower performance and higher dissatisfaction and frustration in the high constraint work setting.

Peters, et al. (1982) reported significantly less performance variance in their high constraint as compared to their low constraint work setting. This finding was not supported within the Peters et al. (1980) data set. O'Connor,

Peters, and Segovis (1983) reported that data from the Peters, Chassie, et al. (1982) study produced a significant interaction between abilities and constraints in the prediction of performance (i.e., the relationship between task-relevant abilities and performance was strongest in the low constraint task setting). Peters, Fisher, and O'Connor (1982) also supported the prediction that constraints have a differential impact on persons who differ in relevant individual differences. Here, performance was better predicted by both ability and previous experience in work settings marked by a low degree of situational constraints.

Recent field investigations have provided initial support for associations between constraints and affective work outcomes. O'Connor et al. (1982) studied managers and non-managers in a variety of jobs in several organizations. Their results indicated that constraints have a direct effect on affective responses. Employees who described their jobs as more constraining reported less satisfaction and more frustration. Pooyan, O'Connor, Peters, Quick, Jones, and Kulisch (1982) also found support for such relationships for managers and non-managers on a variety of jobs in the same organization. In both studies, constraints were measured through employee responses to a general questionnaire based on the eight situational constraints reported by Peters et al. (1980).

In a more recent field study, O'Connor et al. (in press) tested the impact of situational constraints on performance affective outcomes and turnover. Their study used a large sample drawn from three managerial levels within the same organization. This study expanded upon their taxonomy of situational constraints and provided support for several of the hypotheses presented by these authors. For example, they found that high situational constraints were associated with lower appraised performance and satisfaction and with higher frustration and turnover across all managerial levels. While significant relationships were observed between constraints and both performance and turnover, these relationships were much smaller than expected, accounting for only one percent of the variance in each of the depending outcomes. The authors attributed the small correlations observed to the low absolute level of reported constraints. The average constraint score was only 1.7 (on the 5-point scale utilized, with five representing severe constraints).

Work by other researchers has also supported the hypothesized relationships between constraints and affective/behavioral outcomes. Pritchard, Kirk, and Mayo (1975) found differences in situational constraints across task settings to be significantly associated with differences in performance and satisfaction. Kolodny and Kiggundu (1980) found that higher performing groups were better able to deal with constraints present in their work situations.

The majority of the research described above deals with the impact of differences in overall constraining conditions upon relevant work outcomes. Literature on the constraining impact of individual work factors also exists. Eulberg, O'Connor, Peters, and Watson (1983a, 1984) recently reviewed this literature and concluded that although a good deal appears to be known about the impact of particular work factors (e.g., job-related information, tools & equipment, task preparaton, work environment, scheduling, and communications),

knowledge regarding other constraint categories (e.g., materials, supplies and parts, budgetary support, required services and help from others, time availability, transportation, paperwork, policies and procedures, and authority) appears quite limited. This review indicates that at least some individual work factors have an inhibiting influence on task performance.

The Present Effort

The vast majority of situational constraint work has been carried out within either laboratory or civilian work settings. Within these settings, results suggest that situational constraints can limit individual work performance while increasing dissatisfaction and frustration.

Initial results from investigations within military settings suggest that constraints exist in military organizations (Broedling, Crawford, Kissler, Mohr, Newman, White, Williams, Young, and Koslowski (1980), and that they also may have an important impact on performance. Observational studies by Kane (1979, 1981), for example, suggest that as much as 50% of the work time of Air Force maintenance workers involves coping with constraining work factors. Because of the potential impact of constraints within military work settings, the present effort was undertaken to evaluate the impact of constraints in Air Force jobs. It represents the first systematic exploration of the impact of constraining work factors within the Air Force.

Based on the literature and the hypotheses developed by Peters and O'Connor (1980), several outcomes were hypothesized. First, situational constraints are expected to have a direct, adverse effect on individual performance. That is, the more severe the constraints, the lower the observed performance is expected to be.

Second, while constraints affect all persons, they are expected to have their strongest effect on individuals with high task-relevant abilities and motivation, in that high ability, highly motivated persons are probably limited most by severe constraints. The more severe the constraints, the smaller the expected difference between the best and poorest performers. Thus, situational constraints are hypothesized to result in restriction of performance variance among persons in high constraint work settings.

Third, restricted performance variance in high constraint work settings is expected to attenuate relationships between performance and other variables which partially determine performance (e.g., ability, motivation). This prediction is based on empirical results (O'Connor et al., 1982; Peters, Fisher, & O'Connor, 1982), as well as Schneider's (1978a) argument that work settings must permit the expression of individual differences if these differences are to be reflected in performance.

Fourth, constraints are expected to produce negative affective reactions. Both theoretical argument (Peters & O'Connor, 1980) and findings observed in laboratory and civilian work settings (O'Connor et al., 1982; O'Connor et al., in press; Peters et al., 1980; Peters, Chassie, et al., 1982; Pooyan et al., 1982) suggest that constraints promote both dissatisfaction and frustration. Thus, a fourth hypothesis holds that constraining work factors are associated with greater dissatisfaction and frustration when they interfere with the attainment of valued goals.

Fifth, differences in the strength of individuals' affective reactions are predicted in severe constraint conditions. High ability, highly motivated persons are expected to be more strongly affected by severe constraints than are their low ability, poorly motivated peers. This should be manifest as an individual differences x constraint interaction in which the relationship between relevant abilities/motivation and affective outcomes would be more negative within high constraint as compared to low constraint work settings.

Finally, because constraining work factors are expected to have a negative impact on affective reactions, and since affective reactions are related to turnover (Mobley et al., 1979), it is hypothesized that constraints have a negative impact on reenlistment plans and lead to increased thoughts of leaving (O'Connor et al., 1982). The more severe the constraining work factors, the greater the turnover tendencies should be. Moreover, since severe constraints have a more negative impact on the affective reactions of highly able and motivated personnel, turnover tendencies due to the presence of severe constraints should be greater among more able and motivated persons. These tendencies should be reflected in precursors to actual turnover (Mobley, 1977).

Overview of the Current Program

The present effort involved four separate phases and was designed to identify situational constraints found in Air Force work environments, to develop and validate a questionnaire to assess the severity of these constraints and utilize that questionnaire to investigate the hypotheses previously stated. First- and second-term enlisted personnel occupying semi-skilled (3-level) and skilled (5-level) positions in a variety of Air Force specialties (AFSs) participated in the investigation.

Phase I was aimed at identifying important work obstacles common to Air Force enlisted positions. For this purpose, 256 airmen from throughout the continental United States responded to an open-ended questionnaire on which they described situational factors in their immediate work environment which they believed negatively affected their job performance. From this information, a situational constraints taxonomy and a corresponding initial version of a constraints questionnaire were developed.

Phase II was designed to gather information regarding the psychometric properties of the questionnaire and to refine that questionnaire through standard data reduction and analysis methods. Phase II involved a sample of 1,352 airmen from throughout the world. A large sample was employed to insure the stability of the factor analytic results and to provide a representative overall view of the validity of the constraint measures using criteria other than performance, such as satisfaction, frustration and reenlistment intent.

Phases III and IV used a refined version of the constraints questionnaire validated during Phase II, along with other survey instruments and information from personnel records to investigate empirically the hypothesized relationships between constraints and performance, motivation, affective reactions, reenlistment plans and thoughts of leaving. To this end, incumbents in seven AFSs responded to questionnaires which contained the constraint scales and

demographic and affective reaction questions. Their supervisors were also surveyed to obtain information on the airmen's job performance and effort. The supervisors also provided information on constraints and demographics. Additionally, airmen's ability scores were collected directly from personnel records.

The Phase III sample was composed of between 59 and 100 incumbents and 25 to 40 supervisors from each of six occupational specialties. To allow an assessment of the generality of results, jobs were chosen to differ along major job dimensions. Phase IV involved a sample of 282 airmen within a single occupational specialty, and their 67 supervisors. It was designed to test the interactive hypotheses in addition to all main effect hypotheses. Thus, Phase IV was designed to examine the predicted differential effects of constraints on persons who differed with regard to their task-relevant abilities and motivation. Data for possible use in a utility analysis were also collected during this phase.

The remainder of this paper describes, in detail, the design, results, and implications of this project. First, a description of each phase is provided, followed by a general discussion of results. Finally, implications of the findings for future research are presented, as well as recommendations for practical applications within the Air Force. Two brief summaries of this effort are available for interested readers who do not require a detailed account. Eulberg, O'Connor, Peters, and Watson (1983b) provides a summary of Phases I and II; while Watson, O'Connor, Eulberg, and Peters (in press) provides a brief summary of the entire effort.

II. PHASE I

Purpose

The objectives of Phase I were (1) to identify important obstacles to performance (i.e., situational constraints) experienced by first- and second-term Air Force enlisted personnel in semiskilled (3-level) and skilled (5-level) positions, and (2) to develop a taxonomy of these situational constraints found in Air Force work settings. To accomplish this, a two-step methodology developed by Peters et al. (1980) was used. First, circumstances in which situational constraints were experienced in Air Force jobs were identified using an open-ended survey to elicit this critical incident data. Second, a content analysis of these critical incidents was performed to categorize the types of situational constraints identified. These steps are described in greater detail below.

Method

Subjects and Procedures

Open-ended questionnaires were sent, through base distribution, to 956 airmen. These participants were chosen randomly from 12 Air Force Bases (AFBs) located throughout the United States. All questionnaires were completed anonymously and participation was voluntary. Two-hundred-fifty-six of

these 956 questionnaires were returned to the Air Force Human Resources Laboratory (AFHRL) at Brooks AFB with useable responses (for a response rate of 27%). The response rate was considerably lower than anticipated, probably because the open-ended nature of the survey required written responses from participants. The poor response rate suggests that response bias may be present in these data. However, Phase I results are similar to previous findings (see Eulberg et al., 1983a, 1984). Previous research has produced few potentially relevant dimensions which were not also identified during the current effort. Two other factors also suggested support for the current dimensions. First, it is unlikely that airmen inhibited in their work by severe constraints would be less likely to return questionnaires describing their constraints than would their less constrained peers. In fact, one would expect airmen faced with the strongest constraints to be more likely to express their concerns by returning the questionnaire. Second, redundancy among the 357 critical incidents provided on Phase I questionnaires suggests that these incidents provide a stable basis for identifying constraint dimensions. It would appear, therefore, that Phase I responses provided a theoretically and practically relevant, representative set of situational constraint dimensions applicable to Air Force enlisted jobs.

Measures

Participants provided information about their jobs by responding to an open-ended USAF Work Questionnaire (see Appendix A). On this questionnaire, each person described up to two instances in which they believed a specific situational factor had negatively affected their performance. Thus, starting with a particular incident of poor performance, each respondent worked backward to identify a particular situational factor which they believed explained that poor performance. Other information was also collected in Phase I. Participants also described their affective reactions to the identified constraint, what they did in response to it, and their reasons for behaving the way they did. These measures, however, will not be described in detail since they were of peripheral interest and not central to the conceptual model or hypotheses of this investigation.

Analyses and Results

The 256 persons who responded to this survey provided a total of 357 useable critical incidents. These descriptions were summarized by six undergraduate students at the University of Texas at Dallas. These coders volunteered to participate in exchange for research experience and course credit. They were not familiar with the situational constraint literature, nor were they aware of the dimensions identified in earlier research.

Each coder independently summarized the information contained in a subset of the critical incidents from the open-ended questionnaires. They were instructed to abstract the constraint-relevant information from each questionnaire, eliminating excess verbiage and irrelevant responses. This task was repeated by having each critical incident independently abstracted by a second coder from the same group who followed the same instructions. The two completed abstracts, along with the critical incident description they summarized, were then given to a third coder from the same group who prepared

a final summary based on all of the available information. This procedure yielded 357 brief descriptions of constraining work factors.

A check on the reliability of the abstracting procedure was conducted. Six different undergraduate students were each given the same randomly selected subset of 108 final summaries and the open-ended questionnaires from which they were developed. They were asked to compare each summary to its corresponding questionnaire and indicate whether the summaries adequately captured the original written descriptions. These raters indicated 95% agreement between the summaries and questionnaires. It, therefore, appeared that the procedures for abstracting information were highly satisfactory.

The second step of Phase I involved classifying the 357 critical incidents into categories based on common situational constraint themes. Using a procedure described by Peters et al. (1980), each of the first three authors of this paper independently sorted the 357 abstracts into categories based on their content similarity. Each sorter attempted to identify the key factor or event which negatively affected performance rather than the responsible agent (e.g., supervisor, co-worker). For example, responses such as "my supervisor didn't give me the information I needed on time" or "my co-workers gave me the wrong information," were placed in a category which reflected a lack of "job related information" since it was the lack of timely or appropriate information which seemed to have resulted in low performance. The resulting classification system, therefore, focused on specific performance-relevant situational constraints which might be mediated by any number of persons. Each of the three classifiers identified similar dimensions. The final dimension set, therefore, grew out of highly similar, independent sortings of the 357 specific constraint abstracts.

The summaries for some of the 14 identified categories were further sorted into subcategories in order to clearly describe the critical incidents provided by the airmen. The situational constraint dimensions, their definitions, and subcategories are presented in Table 1.

The adequacy of the 14 dimensions was tested utilizing a retranslation technique appropriate for tasks of this sort (see O'Connor, Arnold, & Bhagat, 1981). Specifically, five graduate and nine undergraduate students sorted the 357 specific constraint abstracts into the 14 dimensions. These students had not participated in earlier aspects of this investigation and were naive regarding previous situational constraint research. They volunteered their help in exchange for research experience and course credit.

Each rater was asked to assign each of the constraint abstracts to one of the 14 constraint dimensions. Across all raters, 83 percent of the abstracts were sorted back into their original dimensions. Even when raters did not fully agree on the dimensions into which a particular abstract should be placed, they confined it to relatively few alternative categories.

Brief Discussion of Phase I Results

In Phase I, poor performance was consistently attributed to (a) unavailable needed resources, (b) inadequate amounts of needed resources, or (c) poor

Table 1

Phase I Situational Constraint Dimensions, Definitions, and Subcategories

I. Training - Individual lacked training necessary to do job.

   A. Others' Training Inadequate

   B. My Training Inadequate

II. Materials & Supplies - Individual lacked necessary materials and supplies.

   A. Unavailable Materials and Supplies

   B. Wrong Materials and Supplies

III. Time - Individual lacked sufficient time to do job.

   A. Not Enough Time

   B. Time Delays

IV. Tools & Equipment - Individual was unable to perform job due to lack of proper tools and equipment

   A. Enough Equipment

   B. Damaged Equipment

   C. Poorly Designed Equipment

V. Planning/Scheduling of Activity - Individual could not complete job due to having to wait for others.

VI. Cooperation from Others - Individual was unable to obtain the help from others needed to complete job.

   A. Poor Cooperation

   B. Untimely Cooperation

   C. Cooperation Hard to Get

VII. Personnel - There was an insufficient number of people present to get the job done.

Table 1 (Continued)

VIII. Physical Working Conditions - Work environment was too hot, too cold, or had too much precipitation.

IX. Policies & Procedures - Individual constrained due to uncertainty concerning correct policies or procedures.

A. Insufficient Notice

B. Inconsistent Policies and Procedures

C. Incorrect Policies and Procedures

X. Red Tape - Some aspect of rules and regulations interfered with job completion.

XI. Transportation - Individual could not get to job site.

XII. Job Relevant Authority - Individual could not do job because of a lack of needed authority.

XIII. Job Related Information - Individual didn't have enough or had wrong information.

A. Unavailable Information

B. Wrong Information

C. Inconsistent Information

XIV. Forms - Lack of proper forms interfered with individual completing the job.

quality resources. A respondent might consider supervision to be poor because a supervisor withholds information, fails to order needed supplies, or assigns tasks for which subordinates are unprepared. While such practices clearly reflect poor supervision, they more specifically point to the work factor (e.g., inadequate job related information, lack of supplies, inadequate task preparation) which directly affects subordinate performance. Thus, the taxonomy was developed to provide specific constraints, avoiding broad and vague categories such as "poor supervision."

As noted by Eulberg et al. (1983a, 1984), these 14 constraint dimensions are similar to those reported in earlier civilian research. Although the present taxonomy is similar to those from previous studies, the categories Red Tape and Transportation have been found only in military research (Eulberg et al., 1983a, 1984). In addition, Budgetary Support, a category identified in previous civilian research (Peters et al., 1980), was not observed within the present Air Force sample.

III. PHASE II

Purpose

The second phase of the R&D program was directed at developing a questionnaire capable of reliably and validly assessing the extent to which constraints were present within enlisted positions. During this phase, the critical incidents and the constraint dimensions from Phase I were used as the basis for scale development. Item writing procedures were smiliar to those employed in past constraint scale development studies (O'Connor et al., in press; Peters et al., 1980). The primary emphasis in Phase II involved empirical verification of the preliminary constraint scale developed in Phase I. Particular attention was paid to scale reliabilities and the extent to which the items mapped the a priori dimension system. In addition, correlations with theoretically appropriate outside criteria were computed to assess construct validity.

Method

Subjects and Procedures

During Phase II, questionnaires (USAF Work Questionnaire) were mailed to 3125 first- and second-term airmen assigned to Air Force bases throughout the world. Subjects were selected on a random basis and represented a wide variety of occupational specialties. No respondents from Phase I participated in Phase II. Questionnaires were sent to organizational addresses and participants were asked to return completed questionnaires to AFHRL in stamped, preaddressed envelopes. Participation was voluntary.

Steps were taken to increase the response rate during Phase II. In contrast to Phase I, no written responses were requested, except in an optional comments section, and considerable attention was focused on enhancing the professional appearance of the survey. A total of 1352 Phase II participants returned useable questionnaires, increasing the response rate to 43%.

As with all surveys, it is possible that nonresponse bias may have been present in the resulting data. However, the research team believed that the size and diversity of the sample provided a highly stable and generalizable data base for Phase II analyses.

Subjects consisted of 1149 males and 203 females with an average age of 25.3 years. The 990 white and 362 minority personnel had been in the Service an average of 5.5 years; a majority held the rank of E5/SSgt or below.

Measures

The Phase II USAF Work Questionnaire was divided into the following eight parts: Part 1, Background Information; Part 2, Describing Your Job; Part 3, Identifying Work Responses; Part 4, Removing Work Obstacles; Part 5; Personal Feelings About Your Job; Part 6, Satisfaction With Your Job; Part 7, Beliefs About Life Events; and Part 8, Comments. In addition to containing the preliminary constraint scale, the questionnaire contained other scales which measured other variables of interest. The Phase II questionnaire is presented in Appendix B, while the various scales measured during Phase II, and the items comprising those scales, are provided in Table 2. A number of scales were included because of their possible relevance to situational constraints, even though they were not included in the conceptual model which guided this investigation. For the sake of brevity, only those variables of primary theoretical interest are discussed in this paper. Attention is focused on the measurement and analysis of variables such as intent to remain (Part 1), situational constraints (Part 2), satisfaction (Parts 5 and 6), and frustration (Part 5). Supervisory culpability and locus of control are not discussed. The reasons scale, which measures reasons airmen respond in particular ways to constraints, is discussed in Appendix D.

Constraint Scale. Of the 14 dimensions identified during Phase I, seven (Training, Materials & Supplies, Time, Tools & Equipment, Cooperation from Others, Policies & Procedures, and Job Related Information) included at least two subdimensions (see Table 1). For example, in the Job Related Information dimension, persons attributed poor performance to lack of, inaccurate, and untimely information. Two items were written to assess each of the subdimensions identified. When no subdimensions were identified, three items were written to assess the overall dimension. As a result, the number of items per dimension ranged from 3 to 6. Item content was based directly on the critical incidents data from Phase I. In order to insure that the items were both well written and content valid, these items, and all others used in this study, were reviewed by AFHRL and Air Force Manpower and Personnel Center (AFMPC) staff members with expertise in survey research. In total, the preliminary version of the Phase II constraint questionnaire contained 57 items written to assess the 14 constraint dimensions.

The questionnaire required persons to express the degree to which they believed each of the 57 statements accurately described their own work situation. Responses were made on a 5-point graphic rating scale, ranging from "Not at All Accurate" to "Completely Accurate." Statements were written such that respondents could express definite endorsement or rejection of each item, and consistent with Lissitz and Green's (1975) conclusions regarding the

Table 2

Scale and Item List for Phase II Questionnaire

Questionnaire Section and Scale	Items
Part 1: Background Information	
Biographical Information	1, 2, 3, 4, 5, 6 9, 10, 11, 12, 13
Intent to Remain	7, 8
Part 2: Describing Your Job (Constraint Scale)	
Training	2, 14, 29, 40
Materials and Supplies	3, 16, 31, 51
Time	6, 19, 32, 41
Tools and Equipment	1, 13, 27, 37, 44, 50
Planning/Scheduling of Activity	5, 17, 53
Cooperation from Others	7, 18, 38, 45, 54, 56
Personnel	8, 20, 28
Physical Working Conditions	9, 21, 42
Policies and Procedures	11, 22, 33, 39, 47, 55
Red Tape	10, 23, 34
Transportation	12, 25, 43
Job Relevant Authority	26, 36, 49
Job Related Information	4, 15, 30, 46, 52, 57
Forms	24, 35, 48
Part 3: Identifying Work Responses (Reasons Scale)	
No Choice	1, 17, 13
Personally Handled the Problem	19, 24, 29
Have Someone Else Handle the Problem	2, 8, 14
No Authority to Handle the Problem	20, 25, 30
Useless to Try	3, 9, 15
Standard Operating Procedures	21, 26, 31
Punish the Guilty Party	4, 10, 16
Ordered to Do So	22, 27, 32
Avoid Negative Consequences	5, 11, 17
Keep It From Happening Again	23, 28, 33
Help Themselves	6, 12, 18
Part 4: Removing Work Obstacles	
Supervisory Culpability	1, 2, 3, 4
Part 5: Personal Feelings About Your Job	
Frustration	1, 3, 5
General Satisfaction	2, 4, 6
Part 6: Satisfaction With Your Job	
Satisfaction with Pay	1, 4
Satisfaction with Supervision	2, 3, 5
Part 7: Beliefs About Life Events	
Internal-External Locus of Control	1-23

limited utility of having rating scales with more than five anchor points, a 5-point rating scale was used. A "Does Not Apply to My Job" option was also included. High scores reflected greater perceived constraints. Since both the "Does Not Apply" and "Not At All Accurate" response alternatives indicated that the item content being rated was not a problem on the job being described, they were combined (i.e., assigned values of 1 on the 5-point rating scale) during the scoring of the questionnaires.

Intent to Remain Scale. Two of the biographical information items (see Appendix B) asked persons to indicate (a) how much longer they planned to stay in the Air Force beyond the present time and (b) how much longer before their current enlistment ends. Intent to remain in the Air Force was computed for each airman by subtracting responses regarding current enlistment duration from responses regarding planned time in the service. It was anticipated that persons who perceived more constraints at work would plan shorter Air Force careers.

Frustration and Satisfaction Scales. The fifth part of the questionnaire contained items from the frustration scale developed by Peters et al. (1980) and the general satisfaction scale developed by Hackman and Oldham (1975). Total frustration and general satisfaction scores were computed by summing the responses to their respective items. High scores on these scales indicated greater frustration and greater general satisfaction. Scores could range from 3 to 21 on both of these scales. Respective means and standard deviations were 11.25 and 4.27 for frustration, and 13.82 and 4.69 for general satisfaction. In the present sample, reliability estimates, based on Cronbach's alpha, were .66 for the frustration scale and .77 for the general satisfaction scale. The sixth part of the questionnaire contained items used to measure satisfaction with pay and satisfaction with supervision. These scales were also developed by Hackman and Oldham (1975). Score values, based on summing responses to their respective items, could range from 2 to 14 for satisfaction with pay, and from 3 to 21 for satisfaction with supervision. Again, high scores reflected higher levels of satisfaction. Respective means and standard deviations were 7.25 and 3.16 for satisfaction with pay and 14.26 and 4.77 for satisfaction with supervision. Reliability estimates were .59 and .88 for the satisfaction with pay and supervision scales, respectively.

Analyses and Results

The purposes of the analyses were (a) to refine Part 2 of the questionnaire in order to produce a final, psychometrically sound instrument for use during Phases III and IV and (b) to validate the 14 constraint scales against relevant non-performance work outcomes. Principal components analyses, coefficient alphas, and Pearson product-moment correlations were used to investigate the dimensionality, internal consistency, and external validity of the constraint scales.

Internal Analyses

Initially, an overall principal components analysis, with varimax rotation, was conducted across all 57 constraint items. These results are presented in Table 3. This initial overall analysis yielded a highly interpretable set of 11 separate components which largely, although not completely, reproduced the 14 a priori dimensions. Items for nine of the a priori dimen-

Table 3

Overall Principal Components Analysis of the 57 Phase II Constraint Items

Component No.	Item No.	Loading	A Priori Dimension
1	7	.74	Cooperation from Others
1	18	.71	Cooperation from Others
1	38	.68	Cooperation from Others
1	45	.76	Cooperation from Others
1	54	.61	Cooperation from Others
1	56	.76	Cooperation from Others
1	26	.43	Job Relevant Authority
1	36	.39	Job Relevant Authority
1	49	.48	Job Relevant Authority
1	32	.32	Time
1	41	.44	Time
2	1	.72	Tools & Equipment
2	13	.76	Tools & Equipment
2	3	.67	Materials & Supplies
2	16	.68	Materials & Supplies
3	24	.85	Forms
3	35	.87	Forms
3	48	.86	Forms
4	9	.89	Physical Working Conditions
4	21	.94	Physical Working Conditions
4	42	.93	Physical Working Conditions
5	12	.90	Transportation
5	25	.91	Transportation
5	43	.91	Transportation
6	11	.71	Policies & Procedures
6	22	.75	Policies & Procedures
6	33	.73	Policies & Procedures
6	39	.48	Policies & Procedures
6	47	.75	Policies & Procedures
6	55	.71	Policies & Procedures
6	30	.51	Job Related Information
6	57	.55	Job Related Information
7	10	.83	Red Tape
7	23	.82	Red Tape
7	34	.80	Red Tape
8	5	.59	Planning/Scheduling of Activity
8	17	.68	Planning/Scheduling of Activity
8	53	.56	Planning/Scheduling of Activity
8	6	.67	Time
8	19	.71	Time
9	8	.76	Personnel
9	20	.76	Personnel
9	28	.76	Personnel
9	2	.60	Training
9	40	.60	Training
10	4	.48	Job Related Information
10	15	.62	Job Related Information
10	46	.51	Job Related Information
10	52	.51	Job Related Information
10	14	.64	Training
10	29	.54	Training
11	27	.67	Tools & Equipment
11	37	.71	Tools & Equipment
11	44	.72	Tools & Equipment
11	50	.75	Tools & Equipment
11	31	.47	Materials & Supplies
11	51	.45	Materials & Supplies

sions (Planning/Scheduling of Activity, Cooperation from Others, Personnel, Physical Working Conditions, Policies & Procedures, Red Tape, Transportation, Job Relevant Authority, Forms) loaded together onto components as expected.

For the other five a priori dimensions, items originally written to assess the same constraint dimension did not load together but did load with other items in a highly interpretable fashion. For example, for the Time constraint dimension there were two items originally developed to assess the subdimension "time delays" (due to others). These two items loaded on the first component with items designed to measure both "Cooperation from Others" and "Job Relevant Authority." The resulting component (Component 1) reflected performance as being constrained by a lack of required services and help from others, with resultant time delays. On the other hand, the other two items from the Time constraint dimension, written to assess the subdimension "not enough time," loaded on the eighth component, "Planning/Scheduling of Activity." In this instance, the resulting component reflected that the job was not getting done due to a lack of available time.

Other instances in which the items from a given a priori dimension failed to load together onto the same component also provided equally interpretable results (e.g., Components 2, 6, 9, 10 and 11). Component 2 reflected an insufficiency of tools, equipment, materials, and supplies, whereas Component 11 reflected that these needed resources were unusable due to being broken or wrong for the job. Component 6 referred to inconsistent job inputs (i.e., Policies and Procedures, Job Related Information), whereas the items on Component 10 suggested that inputs (i.e., Job Related Information, Training) were either wrong or unavailable. The items on Component 9 all referred to not having appropriately qualified persons (i.e., Personnel, Training) to do the job. In effect, the original 14 a priori dimensions were reduced to an interpretable set of 11 empirical components.

Coefficient alphas for the 14 dimensions were all highly acceptable, ranging from .70 to .91. Because the unidimensionality inherent in these latter results provided support for the a priori category system, it was decided to refine the 14 original scales for use during Phases III and IV. Use of these 14 dimensions allowed the assessment of conceptually distinct categories consistent with both prior research (see Eulberg et al., 1983a) and Phase I critical incident data.

Refining the 14 dimension scales involved reducing the number of items used to measure each constraint dimension while simultaneously maintaining the internal reliabilities of those scales. Initially, the 25 items (one from each dimension or subdimension) with the lowest principal components loadings were dropped. Coefficient alphas were then recomputed for each of the reduced 14 dimensions. Since resulting reliabilities frequently dropped below acceptable levels, items were iteratively added back until the reliability coefficients became acceptable.

This procedure resulted in a 42-item total constraint scale possessing 14 dimensions with reliabilities ranging from .72 to .95. Each dimension was comprised of between two and five items, depending on the complexity of the dimension. The total number of items was reduced from 57 to 42 as a result of these analyses. Results from the reliability and principal components analyses make a strong case for the psychometric acceptability of the 14

refined constraint scales. Scores for each constraint dimension were computed by summing the responses to all items which comprised those dimensions. Table 4 presents coefficient alpha reliabilities for the a priori constraint scales and means, standard deviations, coefficient alpha reliabilities and item numbers for the final constraint scales.

External Analyses

To investigate the construct validity of the resulting constraint scales, correlations with relevant work outcomes were computed. The total constraint score, in addition to each of the 14 dimension scores, was correlated with the frustration, satisfaction, and intent to remain variables within the Phase II data set. In order to compute a total constraint score, the procedure utilized by O'Connor et al. (1982), O'Connor et al. (in press), and Pooyan et al. (1982) was followed. This involved transforming the raw scores for each dimension into standardized scores ($\bar{X}$ = 0, SD = 1) and then summing these standardized scores across all 14 dimensions. The correlational results, along with descriptive statistics for the criterion variables, are presented in Table 5. Given the theoretically specified directionality of the associations presented in Table 5, one-tailed tests of significance were applied.

A consistent and predictable pattern of results was observed for the affective and individual difference criteria. In nearly every instance, greater constraints were associated with less satisfaction and more frustration. The correlations relating constraints to intent to remain, with two exceptions, failed to reach statistical significance.

Brief Discussion of Phase II Results

Results of internal analyses indicated that specific constraint dimensions could be measured unidimensionally and with moderate to high internal reliability. Each of the 14 constraint dimensions, as well as total constraints, correlated significantly with a variety of relevant criterion measures. The pattern of these correlations demonstrated the validity of the total constraint scale and its dimensions. Overall, these Phase II data suggested that the constraint dimensions and the total constraint scale provided an appropriate vehicle for investigating the presence and impact of constraints in Air Force enlisted work settings.

IV. PHASE III AND PHASE IV

Purpose

Phases III and IV were designed to investigate hypothesized associations between constraints and performance, motivation, affective reactions, reenlistment plans, and thoughts of leaving. In addition, constraints were also expected to restrict performance variance in severely constraining work settings, and, as a result, interact with relevant individual difference variables (e.g., ability, motivation) in the prediction of performance, affective reactions, and propensity to stay/leave. Main effect hypotheses were tested in both Phase III and Phase IV samples; the interaction and variance hypotheses were tested only in the Phase IV data set.

Table 4

Phase II Means, Standard Deviations, Coefficient Alphas, and Item Numbers for the Constraint Scales

Constraint Scales	Preliminary A Priori Scales	Final A Priori Scales			
	Coefficient Alphas	Mean	Standard Deviation	Coefficient Alphas	Item Numbers[1]
Training	.74	6.28	2.87	.74	2,29,40
Materials & Supplies	.76	6.98	2.84	.80	3,16,31
Time	.73	5.56	2.63	.72	6,19,32
Tools & Equipment	.86	9.24	4.41	.86	13,27,37,44,50
Planning/Scheduling of Activity	.78	3.40	1.88	.78	5,17,53
Cooperation from Others	.91	8.15	4.03	.90	18,38,45,56
Personnel	.85	6.67	3.61	.82	20,28
Physical Working Conditions	.90	4.26	2.69	.95	21,42
Policies & Procedures	.89	7.32	3.71	.90	22,33,47,55
Red Tape	.90	3.27	2.07	.91	23,34
Transportation	.92	3.39	2.22	.94	25,43
Job Relevant Authority	.78	6.21	3.12	.76	26,36,49
Job Related Information	.86	7.11	3.41	.85	30,46,52,57
Forms	.91	2.19	1.58	.93	35,48

[1] Item numbers refer to constraint questionnaire (Part II) in Appendix B.

Table 5

Phase II Correlations of Constraint Scales and Theoretically Relevant Variables

	Intent to Remain	Frustration	General Satisfaction	Satisfaction with Supervisor	Satisfaction with Pay
Total Constraints	-.07*	.44***	-.28***	-.43***	-.28***
Training	-.02	.34***	-.18***	-.36***	-.22***
Materials & Supplies	-.03	.22***	-.11***	-.21***	-.21***
Time	-.01	.33***	-.18***	-.24***	-.19***
Tools & Equipment	-.09**	.22***	-.12***	-.22***	-.16***
Planning/Scheduling of Activity	-.03	.25***	-.14***	-.25***	-.17***
Cooperation from Others	-.05	.35***	-.23***	-.41***	-.21***
Personnel	-.04	.32***	-.18***	-.24***	-.20***
Physical Working Conditions	-.06	.14***	-.07***	-.12***	-.06*
Policies & Procedures	-.06	.29***	-.21***	-.33***	-.20***
Red Tape	.00	.21***	-.13***	-.19***	-.16***
Transportation	-.03	.07**	.00	-.09**	-.05*
Job Relevant Authority	-.06	.30***	-.25***	-.43***	-.21***
Job Related Information	-.05	.31***	-.19***	-.34***	-.16***
Forms	.00	.12***	-.12***	-.16***	-.06*
Number of Items in Dependent Measures	1	3	3	3	2
Coefficient Alpha for Dependent Measures	-	.66	.77	.88	.79
Mean (for dependent measures)	.75	11.25	13.82	14.26	7.25
Standard Deviation (for dependent measures)	.43	4.27	4.69	4.77	3.16

Note: N's ranged from 557 to 1336.

* $p < .05$
** $p < .01$
*** $p < .001$

Phases III and IV were conducted simultaneously by administering the same questionnaire to persons in seven different AFSs during on-site meetings. An important difference between the Phase III samples and the Phase IV sample was the larger number of Phase IV subjects needed to meaningfully test the interaction hypotheses. Since the measures and procedures for these two phases were similar, they will be described together in this section, followed by separate descriptions of the Phase III and Phase IV results.

Method

Subjects

Phases III and IV involved on-site administration of questionnaires to both enlisted personnel and their immediate supervisors. Data for Phase III were obtained from subordinate and supervisor pairs in six different occupational specialties which were selected to reflect differences in major job duties. This sampling plan was chosen to enhance the generalizability of results across Air Force work settings. The specific occupational specialties chosen for Phase III were:

1. Aircraft Pneudraulic Systems Mechanic (AFS 423X4)
2. Fire Protection Specialist (AFS 571X0)
3. Fuel Specialist (AFS 631X0)
4. Materiel Facilities Specialist (AFS 645X1)
5. Personnel Specialist (AFS 732X0)
6. Law Enforcement Specialist (AFS 811X0)

The Phase IV sample was comprised of Medical Specialist (AFS 902X0) personnel and their immediate supervisors.

The number of participants in Phases III and IV was based on statistical power considerations (Cohen, 1977). For the majority of the analyses carried out in Phase III, 75 persons were needed within each AFS in order to have a power of .80 to detect a moderate effect size (r^2 = .09) with a one-tailed alpha of .05. Based on prior findings, main effects were expected to account for up to 15% of the variance, while interaction terms were expected to account for two to three percent above and beyond the main effects. Therefore, a larger sample size was required for the Phase IV interaction research. Specifically, power analysis suggested the need for between 250 and 300 subjects to reject the null hypothesis of no interaction with a power of .80 at the .05 level of significance.

Actual sample sizes were either sufficient or approached the levels needed to carry out main effect and interaction analyses. Sample sizes for subordinate personnel across the six occupational specialties in the Phase III research ranged from 59 to 100. For Phase IV, a total of 282 Medical Specialists provided data. It should be noted that due to instances of missing data, actual sample sizes varied for different analyses. In no instance, however, did this result in samples so small that non-significant findings

could be attributed solely to a lack of adequate power. Demographic information for the Phase III and IV airmen and their immediate supervisors is presented in Appendix C.

Procedures

Data for Phases III and IV were collected at Bergstrom, Carswell, and Dyess AFBs and at Wilford Hall USAF Medical Center at Lackland AFB. This data collection plan was chosen to maximize sample sizes in key occupational specialties while minimizing travel time and expense. The assistance of Survey Control Officers was solicited at each base and a list of eligible airmen at the bases and in the specialties under study was generated. Liaison officers identified corresponding supervisors for each airman and made arrangements for the on-site data collection. Participation was voluntary, and only one airman chose not to participate.

Actual procedures were identical at all bases. Participants were asked to report to designated testing centers on base. Subordinates received a single questionnaire, called the USAF Work Questionnaire as in Phases I and II. This survey contained the refined constraint scale from Phase II and measures of relevant work outcomes. The majority of airmen completed the questionnaire during normal duty hours. Some reported at the end or just prior to the beginning of their duty shift.

Subordinate personnel met in groups ranging in size from 5 to 45 persons. The research team was introduced by a commissioned officer or a senior noncommissioned officer (NCO). The purpose of the project was explained and participants were then given the opportunity to ask questions. This was followed by specific instructions regarding completion of the questionnaire. Participants took between 25 and 45 minutes to complete the survey.

Supervisors met in groups of from 2 to 20 persons. Except for the actual questionnaires they completed, these sessions were identical to those of subordinates. Supervisors took between 30 and 90 minutes to complete their questionnaires, depending on the number of subordinates about whom they had to provide performance ratings.

Measures

In addition to the constraint scale, the subordinate USAF Work Questionnaire contained additional measures to test main and interactive hypotheses. This questionnaire is presented in Appendix D. While the main thrust of the supervisory questionnaire was on the assessment of subordinates' performance, supervisors also completed a second questionnaire which contained additional scales designed to provide information pertinent to the hypotheses to be tested. These two supervisory questionnaires are presented in Appendices E (USAF Performance Questionnaire) and F (Specific Performance Scale). Each measure on the subordinate questionnaire (Appendix D) will be described in the following section. A similar description will follow for measures on the supervisory questionnaires.

Subordinate Questionnaire

Constraints. The refined constraint scale developed during Phases I and

II was employed. Separate scores were computed by averaging responses to items for each of the 14 dimensions. Thus, scores for each dimension could range from 1 to 5. A total constraint score was computed by transforming the raw scores for each dimension into standardized scores ($\bar{X}$ = 0, SD = 1) and then summing these standardized scores across all 14 dimensions.

Means, standard deviations, reliabilities, and item numbers for the total constraint score and the constraint dimension scores (based on the combined Phase III and Phase IV data sets) are presented in Table 6. Means for the 14 constraint dimensions ranged from 1.51 to 2.29. None of these means exceeded the midpoint on the rating scale (3.0). Further, the variability was not particularly large on any of these dimensions. Frequency distributions of this variance are presented in Appendix G. On the total constraints measure, for example, 92.8% of the responses were below the midpoint on the scale. Reliabilities, based on Cronbach's alpha, ranged from .64 to .96. While lower than desirable for some of the scales (e.g., Training and Time), reliabilities were adequate overall.

In addition to computing a total constraint score using all 42 items from the refined constraint scale, responses to three additional items were summed to compute an overall constraint score. This scale was developed to allow subordinates to describe their jobs globally with regard to the inhibiting work conditions present. Descriptive statistics and item numbers for this scale are presented in Table 7. Coefficient alpha for this three-item overall constraint measure was .63. While it would have been desirable to have a higher reliability for this overall constraint scale, the fact that constraints were assessed in a more reliable fashion at the dimension level by the 42-item total constraint measure reduced the concern regarding the reliability of this scale.

Affective Reactions. A variety of affective reactions was assessed using existing measures. These included measures of frustration and satisfaction with various work facets. Table 7 contains descriptive statistics and questionnaire item numbers for these, and other, variables. Scores for all affective reaction measures were computed by summing the responses to all items which comprised each scale.

The five scales of the Index of Organizational Reactions (IOR) (Smith, 1976) were used to assess satisfaction with supervision, the work itself, the amount of work, co-workers, and working conditions. This frequently used satisfaction scale (O'Connor, Peters, & Gordon, 1978) has been shown to be very reliable and valid in prior investigations. In the present effort, reliabilities ranged from .76 to .90. High scores indicated greater experienced satisfaction.

Frustration was measured using the same three-item scale (Peters et al., 1980) described in Phase II. High scores reflected greater experienced frustration. In the Phase III/IV sample, the reliability was .73.

Motivation. The construct of motivation was assessed in a variety of ways. Subordinates provided self-ratings of their internal work motivation and their beliefs concerning their personal control and personal competence at work. Descriptive statistics and item numbers for these scales are presented in Table 7. Scores for each motivation variable were computed by

Table 6

Phase III/IV Descriptive Statistics for Constraint Dimensions

Name of Scale	Items	N	Mean	Standard Deviation	Coefficient Alpha
Total Constraints	1-42	748	1.94	.65	.88
Training	1,17,27	748	2.09	.93	.67
Materials and Supplies	2,5,19	748	2.06	.92	.72
Time	3,8,20	748	1.84	.86	.64
Tools & Equipment	4,19,25,31,37	748	1.95	.95	.84
Planning/Scheduling of Activity	6,21,39	748	1.72	.91	.70
Cooperation from Others	7,26,32,41	748	2.13	1.04	.89
Personnel	9,16	748	2.03	1.13	.78
Physical Working Conditions	10,28	748	2.27	1.56	.96
Policies & Procedures	11,22,34,40	748	1.99	1.03	.86
Red Tape	12,23	748	1.73	1.08	,87
Transportation	13,29	748	1.51	.97	.94
Job Relevant Authority	14,30,36	748	2.29	1.06	.76
Job Related Information	18,33,38,42	748	1.90	.87	.82
Forms	24,35	748	1.70	.99	.92

Note: Items can be found in Part 2 of the USAF Work Questionnaire (Appendix D).

Table 7

Phase III/IV Descriptive Statistics for Other Scales

Name of Scale	Questionnaire Section	Items	N	Mean	Standard Deviation	Coefficient Alpha
Subordinate Questionnaire						
Subordinate Overall Constraints[a]	4	10,18,25*	744	4.52	1.35	.63
Affective Reactions (IOR subscales)						
Satisfaction with Supervisor	3	1,8*,11,16*,20*,25	734	21.39	5.84	.90
Satisfaction with Work Itself	3	2,7*,12,17*,24,28	738	20.41	6.11	.86
Satisfaction with Amount of Work	3	3*,13,21*,27	741	12.87	3.19	.76
Satisfaction with Co-Workers	3	5*,9*,14,19,23	739	16.48	3.86	.76
Satisfaction with Working Conditions	3	6*,10*,15*,18,22,26	741	19.90	5.48	.88
Frustration	4	6,20,22*	728	13.02	4.68	.73
Motivation						
Internal Work Motivation	4	5,11,15,24*	741	22.21	4.25	.69
Personal Competence	4	1,4,9,17*,19,29*	712	34.04	5.59	.88
Personal Control	4	3,12,23*,27	740	19.12	4.46	.55
Propensity to Stay/Leave						
Reenlistment Intentions[b]	1	8,9	748	59.57	80.40	-
Reenlistment Likelihood[c]	3	4	718	2.67	1.00	-
Thoughts of Leaving[c]	4	26	743	3.17	2.06	-
Supervisor Questionnaire						
Effort	3	1,2*,3,4*,5,6*	741	29.01	9.14	.90
Supervisor Overall Constraints[a]	6(Sup)	1,2,3*	272	4.92	1.40	.74

*Indicates an item which was reverse scored

[a] Standardized to a 7-point scale

[b] Computed by subtracting scores on two items.

[c] One-item scales.

summing responses to their corresponding items. On all self-ratings, higher scores reflected greater motivation.

Internal work motivation was assessed using the four-item scale developed by Hackman and Oldham (1975). This scale is commonly used to assess motivational states. The coefficient alpha for this scale was .68.

Two variables, perceived personal control and perceived personal competence, which determine intrinsic work motivation were also assessed. Personal control was measured using a six-item index developed specifically for the current investigation. Items were based on theoretical constructs regarding one's perceived personal control as a central belief in intrinsic motivation (Deci, 1975). The reliability for this experimental scale was only .55. However, since perceived personal control is an important motivational construct, and since it should diminish in high constraint work settings, this scale was used despite its low reliability. Like perceived personal control, perceived competence is a central belief in intrinsic motivation (White, 1959). In the present effort, the four-item scale developed by Phillips and Freedman (1982) was used. The reliability for this measure was .88.

A final motivational variable, effort, was based on supervisory ratings. It will be described in the section concerning questionnaires that supervisors completed.

Propensity to Stay/Leave. Three measures of propensity to stay/leave were used. Descriptive statistics and item numbers for these variables are presented in Table 7. Two of the variables focused on reenlistment plans, and the third, on thoughts of leaving. Each of these process variables (i.e., plans and thoughts about leaving) has been conceptually and empirically related to actual turnover (Mobley, 1977; Mobley et al., 1979). Since the collection of actual turnover data requires a time delay while waiting for that information to become available, these process variables were used instead.

For the first reenlistment plans variable (reenlistment intentions) respondents completed two biographical information items (see Appendix D) in order to indicate (a) how much longer they planned to stay in the Air Force beyond the present time and (b) how much longer before their current enlistment ends. Intent to remain in the Air Force was computed for each airman by subtracting responses regarding current enlistment duration from responses regarding planned time in the service. High values on this measure, expressed as the total number of months beyond the end of the current enlistment, would reflect low intentions to leave. The other reenlistment plans variable (reenlistment likelihood) used a four-point scale on which persons indicated their likelihood of reenlisting at the end of their current term. Twenty-five airmen who were approaching retirement were excluded from all analyses involving this variable. High scores reflected a low tendency to leave.

The final variable (thoughts of leaving) used a single five-point graphic rating scale on which airmen expressed the extent of their agreement with a statement indicating that they frequently think about leaving their job as soon as they can. Here, a high score reflected a high tendency to leave.

Supervisory Questionnaire

Supervisors completed two questionnaires. The first was a general USAF Performance Questionnaire (Appendix E) designed to assess variables pertinent to their subordinates' work situations. The second questionnaire, called the Specific Performance Scale (Appendix F), contained performance appraisal forms. Two different versions of the USAF Performance Questionnaire were used: a short version was used for all AFSs in Phase III, and a longer version for the Phase IV Medical Specialist AFS. This longer version (Appendix E) differed from the shorter version in that it contained two additional sections (Part 2, Job Information and Part 3, Performance Standards). These sections assessed variables of potential, but not primary, interest. For the sake of brevity, only those variables of primary theoretical interest are discussed in this report.

Using the Specific Performance Scale, supervisors provided specific performance ratings for each of their subordinates who completed the Phase III/IV Work Questionnaire. There were seven different versions of this scale, one for each AFS studied, and the differences between them are described in the following paragraphs.

Performance. Performance was assessed by having supervisors provide ratings on appraisal instruments developed for this investigation (see Parts I and II of Appendix F.) Care was taken to insure that appraisal forms covered relevant job content for each of the seven AFSs being investigated, by using information on major job duties obtained from Air Force occupational surveys. Based on data regarding the percentage of personnel, within each AFS, who performed the duty and the average percent of time they spent performing it, either four (Phase III jobs) or six (Phase IV job) major job duties were identified for each AFS, and items were written to assess performance on each of these duties. For the Phase III AFSs, an additional item allowed supervisors to rate, in a single global rating, performance on all other duties as well. The major duties for each occupational specialty are presented in Appendix H.

The performance appraisal form (Appendix F) used during the current investigation asked that the supervisor provide overall ratings of subordinates' performance (Part I) as well as ratings on each major duty (Part II). Ratings were made on 11-point scales ranging from "Exceptionally Poor" to "Exceptionally Good." Because duties varied across jobs within each specialty, supervisors were instructed to rate only those duties they felt were relevant for the particular job being performed by the subordinate being rated. If any duty was not considered relevant, supervisors were instructed to check a not-applicable category.

For both the overall and specific ratings (Parts I and II), supervisors were asked to make two sets of ratings. They were asked to evaluate performance by first considering the special circumstances typically faced by their subordinates while performing their jobs, and then, by considering the absolute level of that performance, regardless of those special circumstances. This dual approach was used to collect ratings which differed in the extent to which constraining work factors were considered and incorporated into the rating variance. It was hoped that if supervisors reflected upon constraining

circumstances in the first rating, then the second rating would be less contaminated by this situational source of variance.

Detailed written instructions were provided to clarify the distinction between each type of rating. Supervisors were asked to evaluate their subordinates' performance given the conditions under which they must typically work. This was referred to as the "considering everything" condition. Supervisors were also asked to rate subordinate performance a second time. On this second occasion, they were directed not to take everything into consideration when making their evaluation. This was referred to as the "absolute" condition. The meanings of "absolute" and "considering everything" were described at length. These instructions are given in Appendix F.

Descriptive statistics for all performance ratings are provided in Table 8. The overall ratings represent the one item performance scales from Part I of Appendix F. The dimension ratings were computed by summing the responses for all specific performance dimensions in Part II of that same appendix, and then dividing this sum by the number of dimensions rated. All scales could vary from 0 to 10. Mean ratings for all measures were elevated, with mean ratings on the "absolute" rating scales being slightly higher than those on the "considering everything" scales.

Other Scales. In addition to performance, several additional variables were assessed. Descriptive statistics and item numbers for these variables were presented in Table 7. As mentioned earlier, motivation was measured by supervisor ratings of subordinates' effort. This was assessed by summing responses to a six-item scale developed specifically for the current investigation. Coefficient alpha for this scale was .90. Also, overall constraints, as perceived by supervisors, were measured by summing responses to three items which were modified from the subordinate questionnaire. Coefficient alpha for this measure was .74.

A number of additional scales were also included because of their possible relevance to situational constraints. Since these measures were of potential, but not primary, interest, they will not be discussed in this paper.

Analyses and Results

Results are presented in three sections. The first section reports on results pertinent to understanding the variables in the data set. For this purpose, interrelationships among variables within the clusters of similar variables (e.g., all constraint variables) are described. This section is followed by a report of results pertinent to the hypothesized main effects. Finally, results concerning the hypothesized interactions are described.

Preliminary Data Analysis

The constraint dimensions tended to be highly correlated. These results are reported in Table 9. Observed correlations ranged from .04 to .73 and were typically moderate to strong; over 50% of the correlations exceeded .40. Dimensions with the smallest average correlations were Physical Working Conditions, Transportation, and Forms. These results reflect a consistent

Table 8

Phase III/IV Descriptive Statistics for Performance Measures

Name of Scale	Questionnaire Section	No. of Items	N	Mean	Standard Deviation
Absolute Performance-Overall	1	1	720	7.13	2.03
Absolute Performance-Dimensions[a]	2	1-6	745	7.03	1.96
Considering Everything Performance-Overall	1	2	720	7.54	1.88
Considering Everything Performance-Dimensions	2	1-6	744	7.35	1.79

[a]Number of items for AFS 902X0 was 6; all other AFSs used 5 items.

Table 9

Correlation Coefficients Among Phase III/IV Constraint Variables

Variables	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) Total Constraints	.56***	.69***	.68***	.66***	.70***	.67***	.76***	.67***	.38***	.75***	.68***	.48***	.72***	.78***	.38***
(2) Subordinate Overall Constraints		.42***	.30***	.39***	.43***	.38***	.48***	.36***	.16***	.46***	.35***	.20***	.46***	.47***	.47***
(3) Training		--	.45***	.39***	.40***	.38***	.62***	.59***	.15***	.48***	.38***	.17***	.49***	.57***	.21***
(4) Materials & Supplies			--	.39***	.65***	.36***	.43***	.40***	.18***	.45***	.42***	.29***	.42***	.50***	.30***
(5) Time				--	.41***	.59***	.49***	.45***	.06*	.43***	.52***	.27***	.40***	.45***	.28***
(6) Tools Equipment					--	.32***	.49***	.38***	.31***	.45***	.39***	.32***	.43***	.51***	.23***
(7) Planning/ Scheduling of Activity						--	.46***	.40***	.10**	.54***	.53***	.31***	.49***	.48***	.16***
(8) Cooperation from Others							--	.58***	.16***	.53***	.43***	.24***	.58***	.64***	.24***
(9) Personnel								--	.04	.40***	.38***	.21***	.48***	.46***	.26***
(10) Physical Working Conditions									--	.23***	.12***	.31***	.17***	.18***	.12***
(11) Policies & Procedures										--	.50***	.24***	.56***	.73***	.21***
(12) Red Tape											--	.29***	.48***	.43***	.25***
(13) Transportation												--	.24***	.28***	.08*
(14) Job Relevant Authority													--	.58***	.16***
(15) Job Related Information														--	.28***
(16) Forms															

Note: N's ranged from 744 to 748. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

view of work settings as constraining along several dimensions, supporting the use of a total score based on combining dimension scores. Correlations between this total score and the 14 individual constraint dimensions were high, ranging from .38 to .78.

Mean total constraints scores were found to differ significantly across the seven AFSs ($F=8.88$; $df=6,738$; $p \leq .001$). These scores for each occupational specialty were (a) AFS 645X1 ($\bar{X}=2.19$), (b) AFS 811X0 ($\bar{X}=2.14$), (c) AFS 631X0 ($\bar{X}=2.12$), (d) AFS 423X4 ($\bar{X}=1.95$), (e) AFS 571X0 ($\bar{X}=1.95$), (f) AFS 902X0 ($\bar{X}=1.79$), and (b) AFS 732X0 ($\bar{X}=1.75$). The first three AFSs listed had significantly greater mean constraint scores than the last four AFSs. However, even the AFSs with the most severe constraints (i.e., Materiel Facilities Specialists) was well below the 3.0 midpoint on the rating scale.

Table 10 reports correlations among the four performance measures. The four supervisory ratings correlated very highly with each other. The "absolute" rating method did not appear to eliminate situational sources of variance effectively. Correlations between the "absolute" and "considering everything" scales were all very high (.77 to .89), suggesting a large shared source of variance. These results, in conjunction with other results which indicated that the "absolute" scales produced only slightly lower mean ratings than did the "situational" scales, suggest that the dual scale approach utilized did not appear to effectively produce performance data that were consistent with the goal of removing situational sources of variance.

Data relating affective responses to other affective responses are presented in Table 11. As seen in Table 11, all affective response variables are moderately related. While such results might suggest the use of an overall affective reaction variable, these correlations were not so strong as to make this a compelling conclusion. Table 11 also contains correlations for the three propensity to stay/leave variables. The two measures of reenlistment plans (i.e., reinlistment intentions, reenlistment likelihood) were strongly related to each other, and less strongly related to thoughts of leaving. This pattern of results is consistent with the nature of these constructs.

As shown in Table 12, the three self-ratings of motivation (personal competence, personal control and internal work motivation) were moderately related to each other, and weakly, but significantly, related to supervisory ratings of effort. These results suggest that persons who believe in their competence and control also see themselves as internally motivated and tend to be seen as such by their supervisors.

Main Effect Analyses

Constraints were hypothesized to relate to performance, motivation, affective reactions, and propensity to stay/leave. These hypotheses were tested by correlating each of the 14 constraint dimensions, the total constraints score, and the short subordinate overall constraints scale with each of these outcome variables. All analyses were done within occupational specialty, allowing for the opportunity to replicate findings across samples.

Table 10

Correlation Coefficients Among Phase III/IV Performance Variables

	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Absolute Performance-Overall	.87	.83	.80
Absolute Performance-Dimensions	--	.77	.89
Considering Everything Performance-Overall		--	.87
Considering Everything Performance-Dimensions			--

Note: N's range from 706-744. All correlations significant at the $p < .001$ level (one tailed test).

Table 11

Correlation Coefficients Among Phase III/IV Affective and Propensity to Stay/Leave Variables

Overall Sample

Variables	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Satisfaction w/ Supervision	.36***	.38***	.54***	.35***	-.31***	.13***	.18***	-.29***
(2) Satisfaction w/ Work Itself	-	.47***	.50***	.55***	-.45***	.26***	.32***	-.55***
(3) Satisfaction w/ Amount of Work		-	.46***	.47***	-.58***	.10***	.20***	-.40***
(4) Satisfaction w/ Co-Workers			-	.49***	-.42***	.09***	.19***	-.38***
(5) Satisfaction w/ Working Conditions				-	-.45***	.13***	.22***	-.37***
(6) Frustration					-	-.05	-.12***	.45***
(7) Reenlistment Intention						-	.60***	-.24***
(8) Reenlistment Likelihood							-	-.31***
(9) Thoughts of Leaving								-

Note: N's ranged from 717 to 741. All tests are one tailed.

*p < .05
**p < .01
***p < .001

Table 12

Correlation Coefficients Among Phase III/IV Motivation Variables

Overall Sample

	Personal Control	Internal Work Motivation	Effort
Personal Competence	.57***	.45***	.21***
Personal Control	-	.30***	.14***
Internal Work Motivation		-	.11***
Effort			-

Note: N's ranged from 706 to 741. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

This design made it possible to verify the generality of findings and to identify variations across subsamples in the degree to which the hypotheses were supported.

Tables 13 through 19 contain means and standard deviations for the constraint variables as well as constraint-performance correlations. Mean constraint levels were consistently low. Only three of the 98 dimension means exceeded the midpoint (3.0) on the five-point scales. No meaningfully interpretable pattern of differences in the levels of constraints across AFSs was observed.

Of the 56 possible associations with the total and overall constraint scales, only four significant relationships were observed. In addition, the pattern of results for the 14 constraint dimensions varied across AFSs. Specifically, differences were observed regarding both the number of significant correlations and the sign of those correlations. For each AFS, 56 potentially significant associations were investigated between the constraint dimensions and performance. The numbers of significant constraint dimension to performance correlations observed for each AFS were (a) AFS 423X4=12, (b) AFS 571X0=0, (c) AFS 631X0=0, (d) AFS 645X1=20, (e) AFS 732X0=3, (f) AFS 811X0=10, and (g) AFS 902X0=3. Contrary to expectations, 26 additional associations (1 in AFS 423X4; 5 in AFS 571X0; 11 in AFS 631X0; 1 in AFS 811X0; and 8 in AFS 902X0) would have been significant if two-tailed tests of significance had been applied. The direction of these correlations indicated that higher constraints were associated with higher performance. All of the significant correlations between constraints and performance were positive in the Fire Protection and Fuels Specialist AFSs (571X0 and 631X0, respectively), and 67% were positive for the Medical Specialist AFS (902X0). By contrast, only 14.3% of the observed significant correlations had positive signs for the Pneudraulic Specialist (AFS 423X4) job, and none were positive for the Materiel Facilities Specialist (AFS 645X1), Personnel Specialist (AFS 732X0), or Security Specialist (AFS 811X0) positions. While these latter four jobs produced the hypothesized negative correlations, the positive associations observed for other jobs were in direct contrast to the outcomes expected. Given this off-setting pattern of both positive and negative associations between constraint dimensions and performance ratings, it is not surprising that few significant correlations were observed between the overall constraint measures and the performance ratings.

The finding involving the varying signs of the correlations across AFSs further suggests that constraints may bear some theoretically meaningful relationship to performance within enlisted AFSs. Regardless of the percentage of such significant correlations, however, or the differing directions of these associations, it should be noted that the magnitude of these correlations never exceeded .40. In fact, the relationships were typically much lower. Thus, even though the pattern of results initially appears interesting, it nonetheless accounted for a very limited percentage of the variance in the performance ratings.

Tables 20 through 26 report results relating constraints to the motivation variables for each AFS. With the exception of the Pneudraulic Specialist AFS (423X4), results for the total and overall constraint scales suggest that constraints are related to two of the four motivation variables. For six of the seven AFSs, persons reporting more constraints said they experienced less

Table 13

Phase III Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 423X4

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	1.95	.62	-.20	-.07	-.20	-.09
Subordinate Overall Constraints	4.31	1.23	-.26*	-.10	-.19	-.15
Training	1.90	.96	.17	.31+	-.04	.10
Materials & Supplies	2.36	1.03	-.17	-.11	-.25*	-.10
Time	1.89	.73	-.10	-.09	-.02	.03
Tools & Equipment	2.04	.97	-.34**	-.20	-.33**	-.22*
Planning/Scheduling of Activity	1.59	.70	-.10	-.05	-.08	-.06
Cooperation from Others	1.93	.96	-.13	.02	-.03	.00
Personnel	1.58	.95	-.04	.09	-.13	.01
Physical Working Conditions	3.03	1.37	-.01	-.02	.02	.00
Policies & Procedures	1.67	.74	-.24*	-.04	-.26*	-.15
Red Tape	1.94	1.20	-.17	-.18	-.05	-.12
Transportation	1.86	1.00	-.25*	-.22*	-.22*	-.12
Job Relevant Authority	2.09	.94	-.24*	-.08	-.23*	-.09
Job Related Information	1.76	.85	-.21	-.01	-.29**	-.13
Forms	1.73	.93	-.03	-.01	.01	-.01

Note: N's range from 37 to 59. All tests are one tailed. Correlations with + signs would have been significant ($p < .05$ or stronger) had a two tailed significance test been applied.

* $p < .05$
** $p < .01$

Table 14

Phase III Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 571X0

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	1.95	.65	.04	-.03	.06	-.04
Subordinate Overall Constraints	4.47	1.59	.04	-.06	.09	-.03
Training	2.31	.87	.23+	.14	.20+	.17
Materials & Supplies	2.17	.89	.07	-.04	-.02	-.03
Time	1.76	.90	-.01	-.07	-.06	-.16
Tools & Equipment	1.78	.82	-.02	-.16	-.02	-.15
Planning/Scheduling of Activity	2.08	1.28	.01	-.01	.06	-.01
Cooperation from Others	2.30	1.16	-.09	-.14	-.05	-.11
Personnel	1.77	.88	.28+	.15	.26+	.19+
Physical Working Conditions	2.41	1.27	-.14	-.02	-.05	-.03
Policies & Procedures	2.21	1.22	-.03	-.07	.00	-.08
Red Tape	1.74	1.11	.05	.04	.05	-.05
Transportation	1.20	.71	-.10	-.08	-.12	-.17
Job Relevant Authority	2.54	1.06	.09	.05	.14	.07
Job Related Information	1.85	.69	.12	.00	.16	.07
Forms	1.24	.55	-.02	-.17	.04	-.12

Note: N's range from 45 to 70. All tests are one tailed. Correlations with + signs would have been significant ($p < .05$ or stronger) had a two tailed significance test been applied.

Table 15

Phase III Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 631X0

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	2.12	.62	.09	.17	.10	.14
Subordinate Overall Constraints	4.86	1.20	-.09	.01	-.14	-.01
Training	2.01	.85	-.07	-.03	-.07	-.07
Materials & Supplies	2.23	1.07	.03	.19+	.11	.23+
Time	1.86	.83	-.02	.01	-.03	-.04
Tools & Equipment	2.51	1.10	.11	.20+	.10	.16
Planning/Scheduling of Activity	1.70	.86	.17	.16	.20+	.19+
Cooperation from Others	2.27	.97	-.11	-.03	-.09	.08
Personnel	2.14	1.00	.11	.14	.14	.14
Physical Working Conditions	3.55	1.38	-.08	-.04	-.14	-.05
Policies & Procedures	1.99	.88	.16	.21+	.13	.14
Red Tape	1.80	1.18	.11	.15	.14	.14
Transportation	1.92	1.05	.15	.18+	.20+	.21+
Job Relevant Authority	2.44	1.05	.13	.20+	.17	.18+
Job Related Information	1.97	.86	.03	.07	-.02	.04
Forms	1.24	.46	.12	.12	.06	.00

Note: N's range from 62 to 83. All tests are one tailed. Correlations with + signs would have been significant ($p < .05$ or stronger) had a two tailed significance test been applied.

Table 16

Phase III Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 645X1

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	2.19	.81	-.13	-.22*	-.15	-.20*
Subordinate Overall Constraints	4.63	1.43	-.07	-.12	-.14	-.10
Training	2.37	1.06	.01	-.08	.02	.00
Materials & Supplies	2.04	.94	-.10	-.10	-.07	-.08
Time	2.16	1.16	-.18	-.27**	-.21*	-.26**
Tools & Equipment	2.09	1.12	.03	-.02	-.03	-.07
Planning/Scheduling of Activity	2.11	1.09	-.22*	-.26**	-.20*	-.22*
Cooperation from Others	2.60	1.29	-.15	-.17	-.14	-.10
Personnel	2.59	1.39	-.01	-.10	-.04	-.05
Physical Working Conditions	2.64	1.54	.05	-.05	.00	-.08
Policies & Procedures	2.02	1.11	-.30**	-.38***	-.30**	-.36***
Red Tape	2.07	1.26	-.05	-.20*	-.06	-.16
Transportation	1.99	1.34	.04	.02	.04	-.02
Job Relevant Authority	2.43	1.15	-.27**	-.32**	-.25**	-.30**
Job Related Information	1.98	1.02	-.19*	-.21*	-.22*	-.19*
Forms	1.52	.89	-.01	-.10	-.05	-.06

Note: N's range from 68 to 81. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 17

Phase III Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 732X0

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	1.75	.51	-.08	-.07	-.02	.00
Subordinate Overall Constraints	4.41	1.31	-.14	-.09	-.10	-.07
Training	1.87	.83	-.07	-.02	.01	.04
Materials & Supplies	1.82	.70	-.02	-.03	-.02	-.05
Time	1.87	.83	-.19	-.16	-.15	-.13
Tools & Equipment	1.64	.70	.10	.06	.09	.07
Planning/Scheduling of Activity	1.90	.88	-.19	-.16	-.26*	-.17
Cooperation from Others	1.85	.77	-.26*	-.23*	-.16	-.12
Personnel	1.96	1.10	-.06	-.02	.04	.08
Physical Working Conditions	1.18	.60	.05	.11	.00	.05
Policies & Procedures	1.70	.78	.17	.19	.19	.19
Red Tape	1.83	1.21	-.02	-.09	.02	-.02
Transportation	1.16	.63	.05	.05	.06	.05
Job Relevant Authority	2.11	1.09	.00	.03	.06	.07
Job Related Information	1.70	.78	-.09	-.05	-.01	.00
Forms	1.86	1.04	-.09	-.14	-.03	-.07

Note: N's range from 41 to 68. All tests are one tailed.

* $p < .05$

Table 18

Phase III Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 811X0

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	2.14	.65	-.04	-.08	-.09	-.20*
Subordinate Overall Constraints	4.85	1.21	.07	.04	-.02	-.07
Training	2.28	.98	-.08	-.16*	-.11	-.24**
Materials & Supplies	2.07	.99	-.05	-.08	-.09	-.15
Time	1.61	.84	-.01	-.05	-.09	-.19*
Tools & Equipment	2.11	1.09	-.18*	-.13	-.22*	-.20*
Planning/Scheduling of Activity	1.59	.89	-.01	-.01	-.09	-.15
Cooperation from Others	2.22	1.08	-.08	-.10	.10	-.19*
Personnel	1.85	1.00	-.01	-.12	.01	-.16*
Physical Working Conditions	4.11	1.29	.15	.18+	.03	.11
Policies & Procedures	2.53	1.19	-.11	-.14	-.13	-.19*
Red Tape	1.66	1.04	.01	.00	-.04	-.12
Transportation	1.70	1.08	.09	.05	.13	.04
Job Relevant Authority	2.44	1.09	-.03	-.08	.02	-.10
Job Related Information	2.21	1.01	-.09	-.08	-.08	-.13*
Forms	1.63	1.00	.04	-.06	-.04	-.17*

Note: N's range from 53 to 99. All tests are one tailed. Correlations with + signs would have been significant ($p < .05$ or stronger) had a two tailed significance test been applied.

* $p < .05$
** $p < .01$

Table 19

Phase IV Means, Standard Deviations and Correlation Coefficients Between Constraints and Performance

AFS = 902X0

Variables	M	SD	Absolute Performance-Overall	Absolute Performance-Dimensions	Considering Everything Performance-Overall	Considering Everything Performance-Dimensions
Total Constraints	1.79	.57	.04	.07	.08	.09
Subordinate Overall Constraints	4.35	1.36	.01	.02	.07	.08
Training	1.99	.89	.08	.11	.09	.11
Materials & Supplies	1.99	.86	.06	.08	.09	.12+
Time	1.81	.78	.08	.08	.03	.08
Tools & Equipment	1.77	.77	.07	.05	.08	.07
Planning/Scheduling of Activity	1.55	.73	.01	.04	.04	.06
Cooperation from Others	1.97	.95	.07	.11	.14+	.13+
Personnel	2.06	1.14	.11	.14+	.18+	.18+
Physical Working Conditions	1.21	.69	-.09	-.11*	-.11*	-.12*
Policies & Procedures	1.68	.97	-.04	-.03	-.02	-.03
Red Tape	1.55	.90	-.03	-.01	-.03	.00
Transportation	1.27	.73	-.05	-.02	.00	-.02
Job Relevant Authority	2.18	1.03	-.08	-.01	.00	.01
Job Related Information	1.84	.82	.01	.01	.05	.02
Forms	1.99	1.10	.10	.11	.14+	.15+

Note: N's range from 199 to 282. All tests are one tailed. Correlations with + signs would have been significant (p <.05 or stronger) had a two tailed significance test been applied.

* p < .05
** p < .01
*** p < .001

Table 20

Phase III Correlation Coefficients Between Constraints and Motivation

AFS = 423X4

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	.08	.03	-.13	-.22*
Subordinate Overall Constraints	-.19	-.01	-.12	-.28*
Training	-.06	-.19	-.41***	-.02
Materials & Supplies	.10	.09	-.10	-.23*
Time	.03	-.04	-.08	-.05
Tools & Equipment	-.04	.08	-.11	-.28*
Planning/Scheduling of Activity	.12	.09	.01	-.06
Cooperation from Others	-.06	.02	-.05	-.12
Personnel	.10	-.07	-.15	-.15
Physical Working Conditions	.11	.07	.08	.07
Policies & Procedures	-.10	-.03	-.07	-.24*
Red Tape	.10	.11	.06	-.20
Transportation	.20	.03	-.03	-.17
Job Relevant Authority	.03	.08	-.08	-.24*
Job Related Information	-.13	-.12	-.23*	-.20
Forms	.21	.15	-.09	.18

Note: N = 59. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 21

Phase III Correlation Coefficients Between Constraints and Motivation

AFS = 571X0

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	-.42***	-.54***	-.12	.01
Subordinate Overall Constraints	-.56***	-.59***	-.36***	.00
Training	-.34**	-.37***	-.19	.02
Materials & Supplies	-.31**	-.32**	-.21*	-.06
Time	-.37***	-.55***	.04	.02
Tools & Equipment	-.39***	-.40***	-.22*	-.19
Planning/Scheduling of Activity	-.25*	-.39***	-.05	.13
Cooperation from Others	-.59***	-.60***	-.25*	-.14
Personnel	-.21*	-.25*	-.30**	.11
Physical Working Conditions	-.08	-.14	.10	-.02
Policies & Procedures	-.38***	-.45***	-.09	-.08
Red Tape	-.21*	-.26*	.10	.15
Transportation	-.39***	-.51***	.17	-.02
Job Relevant Authority	-.18	-.34**	-.01	.04
Job Related Information	-.24*	-.40***	-.16	.04
Forms	-.13	-.18	-.25*	.06

Note: N's range from 66 to 69. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 22

Phase III Correlation Coefficients Between Constraints and Motivation

AFS = o31X0

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	-.22*	-.42***	.02	.15
Subordinate Overall Constraints	-.25**	-.43***	-.17	-.10
Training	-.14	-.32***	.09	-.04
Materials & Supplies	-.27**	-.38***	-.05	.13
Time	-.20*	-.19*	-.07	.11
Tools & Equipment	-.17	-.38***	-.03	-.03
Planning/Scheduling of Activity	-.04	-.17	.12	.19
Cooperation from Others	-.18*	-.43***	.03	-.03
Personnel	-.09	-.15	.04	.11
Physical Working Conditions	-.21*	-.22*	-.18*	-.02
Policies & Procedures	.06	-.20*	.16	.17
Red Tape	-.18*	.14	-.08	.21
Transportation	-.13	-.26**	.04	.16
Job Relevant Authority	-.04	-.34***	.17	.26
Job Related Information	-.21*	-.38***	.07	.07
Forms	-.17	-.26**	.02	.09

Note: N's range from 83 to 84. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 23

Phase III Correlation Coefficients Between Constraints and Motivation

AFS = 645X1

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	-.35***	-.26**	.06	-.10
Subordinate Overall Constraints	-.42***	-.58***	-.24**	.07
Training	-.23*	-.08	.04	.02
Materials & Supplies	-.12	-.07	.10	-.02
Time	-.36***	-.42***	.03	-.10
Tools & Equipment	-.13	-.12	.09	.02
Planning/Scheduling of Activity	-.29**	-.29**	.08	-.15
Cooperation from Others	-.31**	-.14	-.02	-.07
Personnel	-.23*	-.12	.05	.03
Physical Working Conditions	-.12	-.07	.03	-.04
Policies & Procedures	-.40***	-.36***	-.02	-.27**
Red Tape	-.36***	-.28**	.02	-.08
Transportation	.03	.00	.18	.00
Job Relevant Authority	-.32**	-.36***	.05	-.16
Job Related Information	-.33***	-.24*	.04	-.15
Forms	-.25**	.03	-.10	-.02

Note: N's range from 81 to 82. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 24

Phase III Correlation Coefficients Between Constraints and Motivation

AFS = 732X0

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	-.30**	-.35**	-.06	-.09
Subordinate Overall Constraints	-.41***	-.50***	-.25*	-.12
Training	-.29**	-.27**	-.09	-.13
Materials & Supplies	-.11	-.05	-.03	-.05
Time	-.13	-.40***	.19	.01
Tools & Equipment	-.04	-.13	.09	.14
Planning/Scheduling of Activity	-.09	-.32**	.16	-.16
Cooperation from Others	-.28**	-.19	-.07	-.31**
Personnel	-.19	-.32**	-.02	-.19
Physical Working Conditions	.10	.20	-.11	-.03
Policies & Procedures	-.16	-.12	-.08	.17
Red Tape	-.19	-.36***	-.12	.02
Transportation	-.45***	-.22*	-.32**	-.06
Job Relevant Authority	-.20	-.21*	-.11	-.09
Job Related Information	-.24*	-.17	-.13	-.04
Forms	-.12	-.11	.01	.01

Note: N's range from 63 to 68. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 25

Phase III Correlation Coefficients Between Constraints and Motivation

AFS = 811X0

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	-.27**	-.43***	-.01	-.11
Subordinate Overall Constraints	-.49***	-.48***	-.14	-.07
Training	-.32***	-.36***	-.12	-.25**
Materials & Supplies	-.15	-.28**	-.10	-.02
Time	-.11	-.31***	.08	.00
Tools & Equipment	-.21*	-.23**	.01	-.05
Planning/Scheduling of Activity	-.08	-.31***	-.04	-.07
Cooperation from Others	-.27**	-.41***	-.05	-.13
Personnel	-.08	-.25**	.09	-.08
Physical Working Conditions	-.28**	-.18*	-.10	-.06
Policies & Procedures	-.31***	-.40***	-.06	-.16*
Red Tape	-.12	-.27**	.09	.00
Transportation	.07	.05	.11	-.05
Job Relevant Authority	-.16	-.37***	-.09	-.01
Job Related Information	-.23**	-.39***	-.02	-.16*
Forms	-.05	-.12	.16	-.12

Note: N's range from 96 to 100. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 26

Phase IV Correlation Coefficients Between Constraints and Motivation

AFS = 902X0

Variables	Personal Competence	Personal Control	Internal Work Motivation	Effort
Total Constraints	-.14**	-.37***	.09	.04
Subordinate Overall Constraints	-.31***	-.42***	-.06	.00
Training	-.06	-.27***	-.03	.08
Materials & Supplies	-.02	-.15**	-.09	.05
Time	-.07	-.29***	-.16**	.04
Tools & Equipment	-.11*	-.21***	-.11*	.11
Planning/Scheduling of Activity	-.20***	-.32***	-.12*	-.03
Cooperation from Others	-.14**	-.36***	-.05	.06
Personnel	.03	-.24***	-.06	.08
Physical Working Conditions	.06	-.02	.01	-.06
Policies & Procedures	-.25***	-.40***	-.14**	-.04
Red Tape	-.12*	-.25***	-.13**	.03
Transportation	.09	-.05	.17	-.03
Job Relevant Authority	-.14*	-.30***	.03	-.07
Job Related Information	-.28***	-.34***	-.09	.01
Forms	-.07	-.09	-.03	.09

Note: N's range from 261 to 279. All tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

personal control and competence. These findings are in contrast to those for the measures of internal work motivation and effort which were seldom significant. Similar findings emerged for the 14 constraint dimensions. These findings suggested that constraints are negatively related to personal competence and control but minimally related to internal work motivation and effort.

As shown in Tables 27-33, constraint scores consistently related to the affective outcomes across occupational specialties. As hypothesized, personnel describing higher levels of total and overall situational constraints generally reported lower satisfaction and greater frustration. This same pattern holds for the 14 specific constraint dimensions. While predicted results were observed for each of the AFSs, significant correlations were observed more frequently in the Fire Protection Specialist (571X0), Medical Specialist (902X0), and Materiel Facilities Specialist (645X1) AFSs than in the Pneudraulic Specialist (423X4) or Personnel Specialist (732X0) AFSs. Although the Physical Working Conditions, Transportation, and Forms constraint dimensions were significantly associated with affective reactions less often than other dimensions, constraints appear to be related to how people feel about their work situation.

In addition to affective outcome associations, Tables 27 through 33 also show relationships between constraints and two different types of propensity to stay/leave measures (i.e., reenlistment likelihood and reenlistment intentions) and thoughts of leaving. Little evidence was found for an association between constraints and propensity to stay/leave when the reenlistment variables were considered. Only 15.2% of the observed correlations involving reenlistment likelihood were significant, and most of these associations were weak. Even less support was found for the relationship between constraints and reenlistment intentions.

A different picture emerged for thoughts of leaving. Total and overall constraint scores and many of the dimensions as well were positively related to thoughts of leaving. The significant relationships were moderate in strength. However, these findings were not consistent across all AFSs since significant associations were less frequently observed for the Materiel Facilities Specialist (645X1) and Security Specialist (811X0) AFSs. For most specialties, however, persons who reported greater constraints tended to express greater thoughts of leaving.

Interaction Analyses

Interaction hypotheses were based on the belief that situational constraints would have a more negative impact on persons with higher levels of task-relevant abilities and motivation than on their less able, less motivated counterparts. As a result, the relationship between these ability and motivation variables and all outcome variables (performance, affective reactions, and propensity to stay/leave) were expected to differ within high constraint, as compared to low constraint, work settings. Specifically, relevant abilities and motivation were expected to be more strongly related to performance in low constraint work settings. In addition, these variables were expected to have a more negative impact on affective reactions and to be more strongly

Table 27

Phase III Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 423X4

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.37**	.01	-.46***	-.28*	-.33**	.29**	-.11	.05	.38**
Subordinate Overall Constraints	-.44***	-.16	-.40***	-.30**	-.35**	.22*	-.09	.11	.24*
Training	-.48***	-.11	-.21	-.47***	-.32**	.28*	-.21	-.05	.47***
Materials & Supplies	-.32**	.09	-.17	-.03	-.09	-.01	-.03	.13	.14
Time	-.22*	-.03	-.45***	-.26*	-.22*	.34**	.08	.13	.39***
Tools and Equipment	-.20	-.13	-.33**	-.08	-.29**	.20	-.19	-.09	.41***
Planning/Scheduling of Activity	-.32**	.02	-.35**	-.13	-.31**	.14	-.01	.04	.23*
Cooperation from Others	-.49***	-.01	-.34**	-.41***	-.28*	.16	-.04	-.06	.23*
Personnel	-.41***	-.04	-.41***	-.36**	-.32**	.29**	-.24	-.08	.37**
Physical Working Conditions	.30**	.07	-.19	.17	-.11	.17	-.11	-.03	.15
Policies and Procedures	-.52***	-.04	-.25*	-.27*	-.27*	.25*	-.15	-.03	.31*
Red Tape	-.18	.10	-.19	-.04	-.05	.07	.05	.07	.00
Transportation	-.08	.01	-.40***	-.16	-.25*	.26*	.13	.22*	.20
Job Relevant Authority	-.46***	.04	-.32**	-.24*	-.22*	.21	-.02	.08	.21
Job Related Information	-.35**	-.22*	-.37**	-.41***	-.38***	.29**	-.09	.02	.43***
Forms	.04	.19	-.27*	-.07	-.05	.11	-.16	.09	.06

Note: N's range from 58 to 59; all tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 28

Phase III Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 571X0

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.52***	-.38***	-.69***	-.48***	-.65***	.44***	-.17	-.05	.37**
Subordinate Overall Constraints	-.52***	-.52***	-.74***	-.54***	-.68***	.64***	-.21	-.23*	.47***
Training	-.31**	-.29**	-.52***	-.37***	-.44***	.32**	-.15	-.09	.30**
Materials & Supplies	-.23*	-.23*	-.43***	-.40***	-.43***	.34**	.07	.04	.31**
Time	-.45***	-.31**	-.58***	-.25*	-.50***	.25*	-.10	-.04	.26*
Tools and Equipment	-.36***	-.27***	-.42***	-.38***	-.44***	.29***	.00	.14	.18
Planning/Scheduling of Activity	-.44***	-.33**	-.59***	-.34**	-.50***	.32**	-.10	-.04	.34**
Cooperation from Others	-.52***	-.47***	-.70***	-.66***	-.68***	.53***	-.10	-.07	.37***
Personnel	-.11	-.24*	-.38***	-.36***	-.35**	.35**	.01	.12	.08
Physical Working Conditions	-.13	-.08	-.21*	.00	-.24*	.10	-.05	.13	.15
Policies and Procedures	-.47***	-.38***	-.58***	-.40***	-.54***	.43***	-.14	-.13	.40***
Red Tape	-.40***	-.18	-.47***	-.22*	-.41***	.21*	-.28**	-.06	.20*
Transportation	-.40***	-.25*	-.51***	-.20*	-.50***	.28**	-.06	-.03	.22*
Job Relevant Authority	-.42***	-.09	-.43***	-.37***	-.38***	.21*	-.33**	-.16	.20*
Job Related Information	-.34**	-.24*	-.41***	-.45***	-.38***	.30**	-.19	-.12	.26**
Forms	-.27**	-.29**	-.20*	-.20*	-.33**	.35**	-.16	-.[illegible]	.21*

Note: N's range from 68 to 70; all tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 29

Phase III Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 631X0

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.15	-.25**	-.36***	-.29**	-.42***	.48***	-.12	.02	.29**
Subordinate Overall Constraints	-.09	-.30**	-.36***	-.33***	-.48***	.45***	-.12	-.02	.26**
Training	-.14	-.10	-.29**	-.31**	-.20*	.32**	-.10	.02	.20*
Materials & Supplies	.11	-.10	-.08	-.16	-.40***	.32**	-.11	-.05	.22*
Time	-.07	-.24**	-.44***	-.29**	-.29**	.33***	-.13	-.11	.30**
Tools and Equipment	-.19*	-.19*	-.11	-.16	-.48***	.28**	-.01	.07	.14
Planning/Scheduling of Activity	.03	-.03	-.30**	-.11	-.25**	.40***	-.04	.03	.20*
Cooperation from Others	-.24*	-.21*	-.27**	-.41***	-.28**	.42***	-.07	.04	.25**
Personnel	-.06	-.09	-.24**	-.13	-.28**	.30**	-.17	.02	.09
Physical Working Conditions	-.08	-.36***	-.18*	-.11	-.28**	.24**	-.09	-.15	.15
Policies and Procedures	-.21*	-.03	-.17	-.18*	-.16	.32**	-.01	.14	.13
Red Tape	.04	-.24**	-.24**	-.07	-.25**	.24*	-.32**	-.15	.33***
Transportation	.00	-.06	-.19*	-.09	-.14	.30**	-.07	.13	.10
Job Relevant Authority	-.25**	-.19*	-.36***	-.23*	-.23*	.32***	.03	.09	.14
Job Related Information	-.14	-.18*	-.25**	-.29**	-.37***	.37***	-.11	.03	.26**
Forms	-.13	-.11	-.12	-.16	-.13	.18*	-.02	-.14	.15

Note: N's range from 81 to 84; all tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 30

Phase III Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 645X1

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.48***	-.26**	-.59***	-.52***	-.46***	.54***	-.05	-.05	.20*
Subordinate Overall Constraints	-.36***	-.45***	-.73***	-.43***	-.48***	.62***	-.13	-.19	.09
Training	-.33**	-.15	-.39***	-.51***	-.36***	.42***	.03	.09	.16
Materials & Supplies	-.27**	-.09	-.45***	-.31**	-.28**	.38***	.04	.06	.14
Time	-.45***	-.34***	-.48***	-.40***	-.37***	.51***	-.03	-.18	.29**
Tools and Equipment	-.21*	-.17	-.51***	-.28**	-.39***	.43***	-.01	.00	.15
Planning/Scheduling of Activity	-.44***	-.29**	-.39***	-.36***	-.21*	.32**	-.04	-.12	.09
Cooperation from Others	-.46***	-.20*	-.45***	-.60***	-.31**	.48***	-.13	-.04	.15
Personnel	-.32**	-.08	-.52***	-.47***	-.32**	.41***	-.08	.02	.05
Physical Working Conditions	-.08	-.06	-.31**	-.12	-.29**	.26**	.04	.10	.09
Policies and Procedures	-.53***	-.34***	-.42***	-.41***	-.35***	.40***	-.10	-.18	.24*
Red Tape	-.36***	-.22*	-.43***	-.41***	-.52***	.40***	-.05	-.12	.17
Transportation	-.12	-.04	-.32**	-.06	-.12	.06	-.09	.04	-.04
Job Relevant Authority	-.44***	-.33***	-.42***	-.39***	-.22*	.42***	-.18	-.19*	.17
Job Related Information	-.45***	-.27**	-.40***	-.44***	-.28**	.45***	.02	-.06	.19*
Forms	-.25**	-.02	-.21*	-.32**	-.41***	.34***	.12	.04	.12

Note: N's range from 80 to 81; all tests are one tailed.

* p <.05
** p <.01
*** p <.001

Table 31

Phase III Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 732X0

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.36***	-.32**	-.41***	-.45***	-.31**	.42***	-.19	.02	.35**
Subordinate Overall Constraints	-.37***	-.50***	-.47***	-.38***	-.18	.53***	-.15	-.01	.46***
Training	-.55***	-.33**	-.35**	-.51***	-.32**	.47***	-.09	-.04	.41***
Materials & Supplies	-.07	-.05	-.09	-.10	-.25*	.20	.05	.34**	.09
Time	-.07	-.22*	-.58***	-.27**	-.18	.41***	-.29**	.01	.21*
Tools and Equipment	-.08	-.19	-.23*	-.29**	-.33**	.13	-.10	.13	.02
Planning/Scheduling of Activity	-.08	-.20*	-.36***	-.19	-.13	.40***	-.28*	.00	.22*
Cooperation from Others	-.51***	-.33**	-.35**	-.55***	-.21*	.27*	-.19	-.13	.35**
Personnel	-.21*	-.31**	-.46***	-.31**	-.25*	.38***	-.10	.08	.26*
Physical Working Conditions	.12	.00	.14	-.06	-.29**	.14	-.10	.21**	-.07
Policies and Procedures	-.22*	-.11	-.10	-.14	-.08	.14	-.13	-.11	.18
Red Tape	-.22*	-.23*	-.28**	-.13	-.13	.20*	-.16	-.06	.34**
Transportation	-.13	.12	.09	-.05	-.01	-.09	.19	.03	-.08
Job Relevant Authority	-.38***	-.20	-.20	-.47***	-.08	.23*	-.16	-.13	.30**
Job Related Information	-.37***	-.21*	-.23*	-.47***	-.13	.31**	-.07	-.07	.34**
Forms	-.13	-.17	-.08	-.14	-.20*	.26*	.04	.31	.09

Note: N's range from 65 to 67; all tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 32

Phase III Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 811X0

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.51***	-.25**	-.52***	-.51***	-.36***	.40***	-.17	.08	.19*
Subordinate Overall Constraints	-.43***	-.49***	-.59***	-.54***	-.50***	.57***	-.28**	-.13	.43***
Training	-.43***	-.27**	-.46***	-.43***	-.22*	.41***	-.10	.16*	.15
Materials & Supplies	-.36***	-.18*	-.36***	-.33***	-.28**	.17*	-.32***	-.05	.17*
Time	-.39***	-.01	-.47***	-.26**	-.21*	.32***	-.04	.16*	-.02
Tools and Equipment	-.42***	-.26**	-.36***	-.39***	-.39***	.25**	-.30**	-.04	.16
Planning/Scheduling of Activity	-.23**	-.04	-.40***	-.23**	-.12	.18*	-.03	.22**	-.04
Cooperation from Others	-.56***	-.27**	-.39***	-.56***	-.23**	.30***	-.16	.02	.18*
Personnel	-.33***	-.09	-.50***	-.30***	-.18*	.46***	-.03	.22*	.06
Physical Working Conditions	-.09	-.25**	-.04	-.12	-.47***	.15	.08	.09	.33***
Policies and Procedures	-.30**	-.26**	-.35***	-.39***	-.30***	.29**	-.13	.00	.19*
Red Tape	-.33***	-.04	-.37***	-.33***	-.10	.26**	-.04	.04	.06
Transportation	-.01	.07	-.02	-.05	.06	.02	.05	.04	-.01
Job Relevant Authority	-.46**	-.26**	-.42***	-.45***	-.27**	.30***	-.12	.01	.15
Job Related Information	-.41***	-.19*	-.40***	-.48***	-.27**	.31***	.11	.01	.10
Forms	-.20*	-.07	-.15	-.20*	-.08	.17*	-.27**	-.11	.11

Note: N's range from 99 to 100; all tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

Table 33

Phase IV Correlation Coefficients Between Constraints and Affective Reactions and Propensity to Stay/Leave

AFS = 902X0

	Satisfaction With								
	Supervision	Work Itself	Amount of Work	Co-Workers	Working Conditions	Frustration	Reenlistment Likelihood	Reenlistment Intentions	Thoughts of Leaving
Total Constraints	-.29***	-.28***	-.43***	-.46***	-.42***	.39***	-.15**	-.03	.26***
Subordinate Overall Constraints	-.38***	-.34***	-.49***	-.41***	-.46***	.45***	-.16**	-.05	.31***
Training	-.25***	-.15**	-.26***	-.47***	-.28***	.17**	.02	.05	.16**
Materials & Supplies	-.07	-.20***	-.28***	-.21***	-.26***	.27***	-.07	.01	.16**
Time	-.14**	-.24***	-.47***	-.22***	-.42***	.37***	-.16**	-.12*	.17**
Tools and Equipment	-.15**	-.25***	-.27***	-.22***	-.38***	.30***	-.10	-.06	.13*
Planning/Scheduling of Activity	-.25***	-.18***	-.38***	-.24***	-.34***	.25***	-.12*	-.02	.20***
Cooperation from Others	-.35***	-.26***	-.40***	-.58***	-.34***	.34***	-.12*	-.07	.27***
Personnel	-.23***	-.10*	-.33***	-.41***	-.25***	.25***	-.04	.02	.25***
Physical Working Conditions	-.08	.03	-.01	-.06	-.08	.04	.00	.09	-.04
Policies and Procedures	-.32***	-.35***	-.35***	-.31***	-.33***	.29***	-.24***	-.11	.22***
Red Tape	-.09	-.13*	-.16**	-.23***	-.25***	.16**	-.04	.01	.12*
Transportation	-.11*	.02	-.09	-.05	-.12*	.19***	-.04	-.07	.04
Job Relevant Authority	-.28***	-.14**	-.30***	-.44***	-.24***	.27***	-.07	.03	.21***
Job Related Information	-.34***	-.31***	-.32***	-.43***	-.36***	.34***	-.17**	-.04	.22***
Forms	.07	-.20***	-.19***	-.09	-.16**	.21***	-.16**	-.02	.12*

Note: N's range from 269 to 780; all tests are one tailed.

* $p < .05$
** $p < .01$
*** $p < .001$

associated with the propensity to leave the organization in high constraint work settings.

These hypotheses were tested using moderated regression analyses (Cohen & Cohen, 1983; Kerlinger & Pedhazur, 1973). These analyses were computed separately for five individual difference variables (ability, personal competence, personal control, internal work motivation, and effort). In each analysis, the individual difference variable, constraint variable, and cross-product term were entered into the regression model in that order. Dependent variables for these analyses were the four performance, six affective outcome, four motivation, and three propensity to stay/leave measures used in the main effects analyses presented above. Since the main effects analyses in the Medical Specialist sample indicated consistent findings for the total constraints score and the 14 constraint dimension scores, only the total constraints score was used in testing interaction hypotheses.

Results from these analyses, indicated that only 8 of the 81 interactions (9.9%) were significant. Of these 8 interactions, only 3 accounted for more than 1% of the variance, and each of these accounted for only 2% of that variance. Further, all significant interactions were in the prediction of satisfaction, as opposed to performance outcomes. Since the percentage of significant results was only slightly greater than what might be expected by chance and since significant interactions accounted for only minimal variance, further exploration of these interaction results was not pursued. As such, it was concluded that for the samples studied, constraints did not interact with ability and motivation in the prediction of relevant outcome variables.

The interaction hypotheses were based on the hypothesis that constraints would restrict performance variance. In order to investigate this hypothesis, tests of homogeneity of performance variance, across high versus low constraint groups, were conducted. These results are reported in Table 34.

High and low constraint groups were formed based on a median split of the perceived total constraint score. For each performance measure, variances for the high and low constraint groups were compared using F-max tests (Winer, 1971). Since the median split did not divide the sample into subgroups of exactly equal size, the sample size associated with the larger group was used when examining the significance of the findings (Pearson & Hartley, 1956). Because the associated degrees of freedom for this value did not correspond to a degree-of-freedom entry in the F-max table, the critical value of F-max for the .05 level of significance was interpolated and estimated to be 1.60. While variances for each of the four performance measures were smaller in the high constraint group than in the low constraint group, in no case did the observed value of F-max meet or exceed the interpolated critical value. Thus, while the variances were in the predicted direction, those differences were not greater than could be expected due to chance.

Summary

1. The 14 situational constraint categories developed and employed in this study provide an adequate basis for describing significant environmental impediments to individual work performance in Air Force enlisted specialties.

Table 34

Phase IV Tests for Homogeneity of Variance in the Performance Variables

Performance Variable	Low Constraint Subsample σ^2	N	High Constraint Subsample σ^2	N	F-max
Absolute Performance-Overall	4.87	135	4.12	135	1.18
Absolute Performance-Dimensions	5.09	140	3.42	142	1.49
Considering Everything Performance-Overall	4.25	135	3.59	135	1.18
Considering Everything Performance-Dimensions	4.38	140	2.76	142	1.59

Note: High versus low constraint subsamples were based on a median split of the constraint scores available for each performance variable. N's vary due to missing data. The interpolated critical value of F-max (see Pearson & Hartley, 1956) at the .05 level is 1.60.

2. Scales consisting of survey items based on the constraint categories were found to be internally consistent when analyzed independently and produced data of acceptable quality, although factor analysis revealed some scale overlap.

3. Surveys of individual respondents in seven Air Force specialties indicated that constraint levels were perceived to be consistantly low across the AFSs studied. In addition, no meaningfully interpretable patterns of differing constraint levels were observed across the AFSs investigated.

4. Some evidence was found that constraints affect perceptions of the job (e.g., satisfaction, thoughts of leaving). Less evident were instances where rated performance decrements could be attributed to the constraint measures. With few exceptions (e.g., thoughts of leaving), these findings were consistent across the seven AFSs investigated.

5. Detailed analysis of a single specialty revealed little support for the idea that constraints interact with individual ability/motivation levels to affect either affective reactions to the job or rated job performance.

V. DISCUSSION OF RESULTS

Overview

The purposes of the current investigation were (a) to identify situational constraints which inhibit airmen in the accomplishment of their assigned tasks, (b) to develop a psychometrically sound measure which could be validly used to identify the presence of such constraints in Air Force work settings, and (c) to investigate the impact of constraints on performance, affective reactions, and propensity to stay/leave in Air Force work settings.

Overall, results indicated that situational constraints could be identified, meaningfully categorized, and validly measured. Phases I and II resulted in the development of a questionnaire useful for identifying constraints in Air Force work settings. Results from Phases III and IV, however, failed to fully support the hypothesized impact of constraints on relevant work outcomes. Some support was obtained when self-report measures of affective reactions, motivation and thought states were assessed, but not when behavior (i.e., performance, effort) or behavioral intentions (i.e., reenlistment plans) were measured. Although 11.6% of the correlations between the constraint and performance measures were significant, the variance accounted for by these associations was very small. An additional 5.8% of the associations would have been significant had a two-tailed significance test been applied, but they were not in the hypothesized direction.

Both supportive (i.e., affective reactions, thoughts of leaving) and non-supportive (i.e., performance, reenlistment plans) results tended to generalize across the seven AFSs studied. Thus, the present results indicate that constraints, appropriately measured, affect internal states, but do not have a substantive impact on persons' behavior or their reenlistment plans.

The discussion which follows begins by examining possible explanations for the failure to support hypothesized relationships between constraints and behavior. Possible alternative definitions of constraints are then presented, and alternative explanations are suggested, consistent with the results obtained in Phases III and IV as well as with results from a large scale civilian study. Finally, implications both for future research on situational constraints and for the Air Force are discussed.

Alternative Explanations

Clearly, important hypothesized relationships involving performance and plans for reenlistment were not observed in the present investigation. Further, neither the restricted variance hypothesis nor the individual difference x constraint interactions this restricted variance was expected to produce found support. Several explanations for the failure to support these hypotheses are presented below.

1. One possible explanation involves the measure of constraints utilized. If that measure was not sensitive to relevant variance in constraints, then non-supportive results such as those found for behavioral outcomes might be anticipated. This, however, is not a likely explanation. Great care was taken in the development of the constraint measures during Phases I and II. Consequently, they have considerable intuitive and empirical support.

The 27% Phase I response rate could have produced biased results. However, evidence discussed earlier suggests that this is unlikely. The recent literature review by Eulberg et al. (1983a) suggests that the constraints identified in the current investigation are very similar to those identified previously in military and civilian studies. This fact supports the generalizability of constraint dimensions across military and civilian settings and also lends support to the contention that the dimensions identified are representative despite the extent of non-response. In addition, the frequent redundancy of the constraints described in the 357 critical incidents, combined with the fact that those individuals facing constraints would be the most likely to respond to a questionnaire about constraints, suggests again that the Phase I sample provided an adequate basis for the current R&D program. Further, Phase II, III and IV results relating constraints to theoretically appropriate affective outcome variables suggested that the measure was indeed sensitive to relevant situational variance. It would be hard to support the notion that the constraint measures were insensitive to relevant variance, or assessing the wrong variance, since the same measures produced predicted results when affective outcomes were investigated.

2. A second explanation concerns the measures of performance utilized in this study. If the variance in these measures was deficient (i.e., did not measure key job duties) or was contaminated (i.e., contained variance due to non-performance factors), then one might anticipate non-supportive findings. This alternative explanation might partially explain the current findings, but evidence suggests that the performance measures captured relevant performance variance in a reliable manner.

The present performance instruments were based on Air Force occupational analysis results regarding key job duties. This fact strongly suggests the job relevance of the scale content. Further, the internal consistency reliability assessment indicated that ratings reflected a unitary underlying construct, presumably based largely on job content. These data suggest that appropriate performance variance was assessed.

Other results, however, suggest that this investigation may not have fully succeeded in separating performance variance due to situational factors from variance due solely to absolute performance output. It was posited that raters might take difficult circumstances their subordinates faced into account and rate subordinates more leniently simply because they were able to work around those difficulties. While incumbents should be applauded for overcoming obstacles at work, it was hypothesized that rated performance, on an absolute level, might suffer to some extent as a result of those very obstacles. Raters may have compensated for such obstacles by giving lower performing airmen working under high constraint conditions ratings equal to those received by their counterparts who produce higher absolute levels of output under less constraining circumstances. Such a pattern of performance appraisal data would lessen the likelihood that the appraisal variable could be related meaningfully to measures of situational constraints. Thus, since constraints might be incorporated dysfunctionally into performance variance, an attempt was made to devise a rating scale which would allow for the control of situational variance.

Differences between the absolute and situational ratings were minimal, typically less than one-third point on the rating scale. This may simply reflect the moderate to low constraint levels reported by the airmen in the AFSs investigated. More damaging were the high correlations between corresponding dimensions, across absolute and situational rating methods. If differences in constraints across jobs really have an impact on absolute levels of performance, much lower correlations should have been found between these scales. This lower correlation would reflect the fact that while people are recognized for working through difficult circumstances on the job, some of those difficult circumstances negatively affect how well the job gets done, in an absolute sense. Further, since not all people can be expected to encounter equally severe constraints at work, the impact of these constraints should not be consistent across people, and therefore, should not result in similar rank orderings of airmen on these two types of performance criteria. The results suggested that supervisors simply rated subordinates a little lower on the absolute scale while tending to preserve their relative rank ordering. Thus, the procedures used in this study were probably not completely successful, and the ratings used in this investigation may have been no better than those traditionally used in performance research. However, no reason exists to believe that the resulting ratings were inferior to those typically used or affected by our efforts to develop an accurate rating methodology. As such, the size and direction of the associations between constraints and performance probably did not differ from those that might have been observed had a standard performance measurement methodology been used. Considering these factors, some inaccuracy in the measurement of performance cannot be ruled out as a partial alternative explanation for the failure to find significant associations between constraints and rated performance.

3. A third explanation for the low relationships between constraints and performance is suggested by the data. In the present investigation, mean constraint levels were very low. Means for the 14 dimensions ranged from 1.50 to 2.29, and the majority of the standard deviations for these variables were less than 1.00 (see Table 6 and Appendix G). Given the five-point scale on which constraints were measured, these data suggest that none of the constraints were consistently perceived to be severe, and that few severely constraining work settings existed within the AFSs studied. Indeed, less than 12% of the respondents took the opportunity to verbally describe specific constraints in the Comments section of the Phase III/IV subordinate questionnaire.

These results parallel those obtained in a recently completed study involving managers in the civilian sector (O'Connor et al., in press). Participants in that study were managers at three different organizational levels within a major convenience store organization. They also described their jobs as markedly non-constraining on a questionnaire developed to assess the presence of constraint dimensions relevant to their jobs. It is also important to note that, while significant in this managerial sample, the variance accounted for by the relationship between constraints and performance was minimal (i.e., one percent). In fact, only in laboratory studies (Peters et al., 1980; Peters, Chassie, et al., 1982), where constraints were specifically manipulated to produce severe constraining work conditions, have strong performance effects been observed.

Given that airmen in the present investigation described their jobs as relatively free from situational constraints, it is not surprising that little difference was observed between the "absolute" and "considering everything" performance appraisal scales, and that both the restricted variance hypothesis and the main and moderator effect analyses predicting performance and reenlistment plans would be non-significant. Since severe work obstacles were seldom reported, it is understandable that the variance in constraints that did exist would not have an impact on performance or reenlistment plans. Further, it is understandable that performance variance was not restricted in high constraint work settings, since the absolute level of constraints present in both high and low constraint settings was low. It is also understandable that the individual difference x constraint interactions were not observed.

Affective Reactions and Propensity to Stay/Leave

Constraints consistently were found to relate to affective reactions as hypothesized in the Phase II, III, and IV data sets. In addition, these relationships in Phase III were consistent across all AFSs and, therefore, might be expected in additional AFSs as well. Given the amount of time people engage in work activities, it seems useful to identify factors which contribute to emotional experiences. Such information is obviously valuable if efforts are to be made to make the workplace more satisfying.

It is noteworthy that constraints did not relate to the reenlistment plan variables in either a consistent or a strong fashion. While thoughts of leaving produced significant results in the theoretically appropriate direction, evidence did not support the impact of constraints on reenlistment

decisions. Similar results regarding reenlistment intentions were observed in the Phase II data set.

Theoretically, the propensity to leave is expected to result from a sequential chain of internal states starting with dissatisfaction, going through thoughts about leaving, and culminating in the intent to leave (Mobley, 1977; Mobley et al., 1979). While it was anticipated that constraints would be related more strongly with factors closer to the beginning of this internal process than toward the end, it was expected that significant findings involving intentions to reenlist would emerge as well. In this investigation, however, it appears that, as with performance, constraints are not reflected in behavior or in intentions.

It may be that the lack of available, desirable alternative employment opportunities during the recent downturn in the economy is partially responsible for the lack of observed associations between constraints and reenlistment plans. Airmen may well be dissatisfied and think about leaving due to the presence of constraints. However, as a result of an unsuccessful search for alternatives or due to general information about the depressed job market, they are aware that finding desirable employment elsewhere would be difficult. Under these conditions, they may plan to reenlist even though they are dissatisfied and have thoughts about leaving.

Similarly, the low level of constraints observed might also explain the results involving performance. If constraints are not severe, then it may simply be unreasonable to expect them to account for significant behavior. At most, they appear to have an impact on satisfaction and frustration, which, in turn, have an impact on psychological precursors to turnover.

Interpretation of Results: Alternative Perspectives

The question remains as to why airmen can so easily describe situational constraints which can be meaningfully grouped and which can be consistently related to affective reactions, and yet bear no relationship with either performance or reenlistment intentions. At the start of this R&D program, it was assumed that constraints exist in the physical world and that they have their impact by preventing incumbents from fully utilizing their talents and motivation at work. The more severe the real-world work obstacles, the more impact they were assumed to have on performance and affective outcomes.

From this viewpoint, the present results can be readily explained in terms of the lack of severity of the situational constraints within Air Force work environments. Consistent with this perspective are the findings that airmen experience more negative affective reactions as constraints increase, but that these constraints and reactions are not so severe as to go beyond occasional thoughts of leaving. Clearly, the impact of a low to moderate level of constraints did not make airmen so unhappy or frustrated that performance or reenlistment plans were affected. In this regard, the mild level of constraints reported would reflect a nuisance factor in doing the job. That is, these mild constraints would act more like an additional "cost" which had to be paid in order to accomplish assignments, a cost experienced as frustration and dissatisfaction. Thus, given the weak level of constraints

reported, the physical-world viewpoint which served as the initial basis for this investigation appears consistent with both the supportive and non-supportive results observed. Within this perspective, these data suggest that the Air Force may have already satisfactorily dealt with situational constraints, at least in the specialties studied.

From an alternative perspective, constraints may be viewed as a phenomenological rather than a physical world variable. If the same work environment can differentially affect people, then constraints may be regarded as an individual phenomenon which results from the influences of both the environment and the individual. This viewpoint does not disregard the impact of physical aspects of the environment, but rather, recognizes that individual characteristics also influence the perceptions generated. In this sense, an alternative viewpoint is being proposed similar to that discussed by Schneider (1983) and based on interactional psychology. According to Schneider (1983), people behave in a proactive manner in response to an "enacted" environment. To the degree that constraints can be thought of as aspects of constructed realities, they can exist in a person's mind regardless of whether they have a physical-world counterpart. As a result, different persons in the same physical work setting might perceive different constraints.

This viewpoint has implications for the functional role played by perceived constraints in work settings. Recognizing that people bring order to and make sense out of events by constructing their own reality, perceived constraints might be regarded as socially acceptable ways of creating explanations for behavior which do not require individuals to lower their feelings of self-worth. Such a process is described by attribution theory and suggests the increased likelihood of making external (i.e., environmental) attributions in the face of failure (Jones & Davis, 1965).

In this sense, constraints may provide a post hoc justification for explaining performance which does not meet standards or which failed to take advantage of opportunities that were present. Persons who fail to meet work expectations might, therefore, use the presence of constraints to try to convince others, and themselves, that justifiable reasons beyond their control existed which made it appropriate to dismiss the occurrence of poor performance, thereby making them less blameworthy.

The data from Phases III and IV are consistent with this viewpoint. Like the physical reality viewpoint, results relating to the low level of perceived constraints can explain both the supportive findings regarding affective reactions and the non-supportive findings regarding performance and reenlistment plans.

Because airmen, in general, were seen to be high performers, no strong justifications were needed to attribute their work behavior to constraints. As such, constraints should have been, and typically were, described as moderate to low. Further, since constraints represent real phenomena within persons' minds, it is legitimate for airmen to complain about their presence. As a result, one would expect that, due to the need to be consistent with prior behavior (see Salancik & Pfeffer, 1978), relationships between constraints and affect would result. After all, if the job is believed to be

constraining, then it is only logical that persons express some unhappiness with regard to those factors which make it constraining. Given that no great justification was needed (i.e., performance was relatively high), one would expect relatively low levels of justificatory behavior (i.e., low constraint scores), as well as limited amounts of dissatisfaction and frustration. Consistent with this perspective, and with the data, one would also expect weak associations between the justificatory constraint responses and reenlistment plans.

In summary, the observed constraint to work outcome relationships can be explained by viewing constraints as an environmental variable with a physical reality or as an individual variable within a reality created by the perceiver. The current data do not support one viewpoint in preference to the other. It is probable that some combination of the two perspectives underlies the current results.

Conclusions and Implications

The following conclusions regarding situational constraints can be made on the basis of the previous discussion and the data from the present effort:

1. Constraints, conceptualized as properties of physical work environments, rarely had a negative impact on airmen's behavior in the AFSs studied. Specific occasional instances when severe constraints actually inhibit performance probably occur, since most people are aware of time when severe physical work characteristics actually have inhibited or prevented behavior. Recent theoretical efforts under the general label of catastrophe theory further support the notion that one can be overwhelmed by physical characteristics which, when less severe, do not result in occurrences of that same behavior (see Sheridan & Abelson, 1983) In this regard, it is interesting to note that the only place constraining work factors have been observed to have a strong impact on performance is in laboratory settings where explicit and impactful manipulations of constraining work settings were intentionally used (Peters et al., 1980; Peters et al., 1982). On the basis of the evidence gathered in both military and civilian investigations, it appears that severely constraining work settings in actual organizations are rare. Data from Phases I, III, and IV of the present investigation, along with results from another recently completed civilian field study (O'Connor et al., in press) suggest this conclusion. Evidence collected to date, therefore, suggests that constraints, as properties of the physical work setting, typically do not appear to require future investigaton or special action.

This conclusion is certainly a surprising one. It is, for example, a conclusion that is not generally shared by other scholars (e.g., Campbell & Pritchard, 1976) who have attempted to identify key factors underlying performance. This does not deny that constraining work factors can exist -- they do. However, they seem to exist in research laboratories more so than in work organizations, and, therefore, the error may be in generalizing findings which can be produced in artificial settings to settings where they seldom naturally occur. Schnieder (1978b) anticipated such a statement when he suggested that individual difference x situation interactions were a laboratory phenomenon.

While the current evidence does not support the need for any special efforts by the Air Force to locate and deal with severe constraints, the surprising nature of this finding suggests the need for further work to verify its generalizability. Several alternative strategies are evident. The situational constraint measurement instrument developed during the present investigation can be used to study additional AFSs as part of a broad survey investigation. The scale might also be used profitably by internal Air Force organizational consultants at the Leadership and Management Development Center (LMDC) as part of a diagnostic package within specific organizational units. These additional organizational units might be identified best by expert opinion (see Pritchard & Karasick, 1973) as being locations where the presence of severe constraints is highly likely. If severe constraints were not identified in such AFSs or organizational units, confidence in the present results and in the conclusion that constraints do not negatively impact airmen's behavior under typical working conditions would be greatly enhanced.

Information currently available within Air Force data banks should also be used to verify the generalizability of conclusions reached within the present investigation. For example, the LMDC has collected information from airmen in diverse AFSs and organizational units. As part of their data collection process, they obtained a limited amount of data relevant to certain specific situational constraints (e.g., tools & equipment, work space, supplies, job information). These data could be obtained for both the specific AFSs studied here and a wider range of AFSs judged by experts to be most likely to have severe situational constraints. While the brevity of the information collected by LMDC and the lack of corresponding performance ratings within that data base do not allow for a replication of the current constraint investigation, a similar pattern of constraint levels across AFSs would provide a further basis for confidence in the current results.

2. A distinctly different possibility may be that the low level of constraints perceived by the participating airmen reflect a conscious and appropriate strategy by Air Force personnel designed to promote effective readiness for military conflict. It may be that the reported low to moderate severity of reported constraints reflects the fact that sufficient slack has been built into the peacetime operations of Air Force AFSs so that extra resources are available to allow effective functioning should conflict occur. Slack has been defined by Bourgeois (1981) as "that cushion of actual or potential resources which allow an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy, as well as to initiate changes in strategy with respect to the external environment" (p. 30). If it is true that a sufficient cushion of resources exists within Air Force AFSs to allow for a major change in strategy due to requirements from the external world, one would not expect the presence of constraints to be perceived as severe or to inhibit performance under peacetime conditions. To the degree that the current mission of the Air Force is to be ready for potential conflict, the presence of a cushion of resources during peacetime may provide a highly effective strategy. Since constraints, however, involve the lack of available resources or the unavailability of quality resources, one would expect to find low levels of situational constraints when high levels of slack have been effectively built into an organization. Under such conditions, people would realize that their performance

would not be negatively affected by the level of resources actually available and, therefore, not consider the available resources to be severe obstacles to effective performance.

Additional topics for future research are implied by this organizational slack explanation. One type of research would include studies designed to test the degree to which the presence of slack actually exists in the AFSs studied and the degree to which such slack, if present, can explain the low association between constraints and behavioral outcomes. One might, for example, collect objective constraint data or assess the presence of constraints from an industrial engineering point of view. By examining the duties carried out from an industrial engineering viewpoint, one might obtain information regarding the actual resources and activities needed to carry out the job or jobs under study. One might then examine objective evidence regarding the degree to which such resources were actually present or alternatively the degree to which airmen were constrained by the lack of such resources. A subjective measure of the presence of slack developed by Kmetz (1980) might also provide useful information during such an investigation.

Given that the actual mission of the Air Force is to operate effectively under military conflict conditions, the degree to which constraints restrict effective performance under these conditions represents a question worthy of further investigation. Under such conditions, when performance is most important, slack resources will typically no longer be available. It is precisely in these conditions, however, that constraints should have an impact on behavior. The degree to which constraints influence perform- ance under such conditions might currently be investigated as part of war- time exercises. In fact, it might actually be built in as part of the evaluation of such exercises and as a diagnostic tool for identifying impediments to maximum performance under these conditions.

3. The low mean constraint scale scores are noteworthy in their own right, in addition to helping explain poor relationships involving constraints. The straightforward implication is that the Air Force appears to be doing a good job of preventing situational constraints from harming the performance of its members under normal conditions. Thus, the present investigation has documented that careful attention to constraining work factors has already been accomplished. Proper dissemination of this information might well be valuable to the Air Force. It could, for example, be utilized to create an accurate public image of an organization that supports it members in getting their jobs done successfully. The enhancement of this image should prove valuable in both recruitment and reenlistment efforts.

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APPENDIX A: PHASE I

UNITED STATES AIR FORCE

WORK QUESTIONNAIRE

Your assistance in completing this survey is very important. This information is being collected by the Air Force Human Resources Laboratory. The purpose of the questionnaire is to identify and assess factors that impact on mission effectiveness. Responses of individuals will be kept absolutely confidential, and will in no way be used in evaluating job performance or for personal evaluations of any type.

PRIVACY ACT STATEMENT. Authority: U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation, E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons. Information provided by respondents will be used solely for Air Force research purposes. All information provided by individual respondents will be treated confidentially. Disclosure of this information is voluntary. No adverse action may be taken against any individual who elects not to participate. However, failure to provide information could detract from the Air Force's ability to improve its personnel policies.

COMPLETION INSTRUCTIONS

When you have completed the questionnaire, seal it in the envelope and return it to your base CBPO using the attached address label. If you have any questions or comments on this questionnaire, contact:

Tom Watson
AFHRL/MODF
Brooks AFB TX 78235
or call Autovon 240-3551

PLEASE COMPLETE AND RETURN TO
YOUR BASE CBPO WITHIN ONE WEEK
USING THE ATTACHED LABEL

USAF SCN 81-98
(Expires 31 Dec 81)

WORK QUESTIONNAIRE

Directions

The attached questionnaire is designed to help gather information on particularly troublesome aspects of your job in the Air Force. Your responses to this questionnaire will be treated confidentially and used for research purposes only. Do not sign your name or give other identifying information on the questionnaire. We are interested in what is said by people such as yourself; not who says it.

Everyone has times at work during which they do not perform well. Many times, this performance is the result of occurrences beyond one's control. That is, it seems that obstacles are placed in your way, and these obstacles prevent you from doing your job to the best of your capability. For example, being given improper tools, outdated equipment, or incomplete information when assigned a task may cause persons to perform below their capabilities. Such obstacles are often beyond control, and yet, help to influence how well we are able to perform our assigned tasks.

We want you to think of two times on your current Air Force job during which your performance was hampered due to two different obstacles over which you had little control. Describe each of these situations in detail on the following pages (one situation per page). Try to pick situations in which the obstacles (1) strongly influenced your performance at work, and (2) were not under your direct control. Please note that there are questions on both the front and back sides of each page.

Finally, we would like you to answer several questions regarding the reasons you had for joining the Air Force. Thank you very much for your cooperation.

SITUATION 1

1. Describe a situation in which you were prevented from doing your job to the best of your capabilities by something in the job that you could not control or change. Be specific in describing what it was that kept you from using your capabilities and how it prevented you from doing your job well.

2. How frequently has this happened to you? (Check one of the following)

Continually	_____
Very Often	_____
Quite Often	_____
Sometimes	_____
Occasionally	_____
Not Often	_____
Seldom	_____

3. How did you feel as a result of being in this situation? Why?

(Continue on other side)

4. What, if anything, did you do about it? Why?

5. Have you ever thought that you should have handled this situation differently? If so, why? What exactly could you have done differently?

6. Do you believe that the Air Force should be able to remove or reduce the problem you have described? _____Yes _____No (check one). If you answered "yes", what should the Air Force do?

SITUATION 2

1. Describe a situation in which you were prevented from doing your job to the best of your capabilities by something in the job that you could not control or change. Be specific in describing what it was that kept you from using your capabilities and how it prevented you from doing your job well.

2. How frequently has this happened to you? (Check one of the following)

   Continually _____
   Very Often _____
   Quite Often _____
   Sometimes _____
   Occasionally _____
   Not Often _____
   Seldom _____

3. How did you feel as a result of being in this situation? Why?

4. What, if anything, did you do about it? Why?

5. Have you ever thought that you should have handled this situation differently? If so, why? What exactly could you have done differently?

6. Do you believe that the Air Force should be able to remove or reduce the problem you have described? _____Yes _____No (check one). If you answered "yes", what should the Air Force do?

Career Choice Questionnaire

A. We would like to find out more about the things people consider when they decide to join the Air Force. Please list at least 4 things that helped you decide to join. One example might be that you wanted to get some specialized training you could not have gotten elsewhere.

1.

2.

3.

4.

B. Do you think you will remain in the Air Force after your present enlistment ends? Why or why not? What reasons might cause you to stay or leave?

C. How long have you now been in the Air Force?

_____Years _____Months

D. What is your current duty AFSC?

Name:_____

Number:_____

PLEASE RETURN COMPLETED QUESTIONNAIRE TO YOUR CBPO

APPENDIX B: PHASE II

United States Air Force Work Questionnaire

As a member of the Air Force, you probably encounter situations at work which occasionally prevent you from doing your job as well as you know it could be done. This questionnaire, developed for the Air Force Human Resources Laboratory, is designed to identify factors in operational Air Force work environments which might hinder productivity. To identify such factors, you will be asked to respond to questions concerned with the description of your job, your responses to various work situations, and related issues.

In your day-to-day activities, you, more than anyone else, are in the best position to become aware of factors affecting your own work. Thus, your assistance in completing this questionnaire is very important. In completing this survey, you can make a meaningful contribution to the development of Air Force policies and practices designed to increase mission effectiveness and your own sense of satisfaction and accomplishment on your job.

The responses you provide will be kept absolutely confidential, and will only be used for research purposes. Your individual responses will not be shared with your supervisor or anyone else in your chain of command, nor will they be used in evaluating your job performance or for personal evaluations of any type.

General Instructions

All responses should be made directly in this booklet, using either a pen or a pencil. Completing the questionnaire is not difficult and should take less than a half-hour. There are no right or wrong answers and you need not spend a lot of time thinking about the best answer. Just indicate what first comes to mind. For some questions, you will be asked to fill in blanks or place a check mark next to the appropriate answer. For others, you will be asked to enter a number in a blank space to the right of each item, corresponding to statements in various response scales which are clearly displayed in bold type. Some items involve circling a letter corresponding to one of two statements with which you agree most. Specific instructions are provided, as needed, throughout the questionnaire. Please be sure to respond to all of the items. A comments section is also included.

When you have completed the questionnaire, seal it in the stamped, self-addressed envelope provided, and return it to the Air Force Human Resources Laboratory (AFHRL/MODF), Brooks AFB, TX 78235. If you have any questions or comments on this questionnaire, contact:

Tom Watson
AFHRL/MODF
Brooks AFB, TX 78235
or call Autovon 240-3551

Again, thanks for your participation in this study.

Privacy Act Statement. U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation. E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons. Information provided by respondents will be used solely for Air Force personnel research purposes. All information provided by individual respondents will be treated confidentially. Disclosure of this information is voluntary. No adverse action may be taken against any individual who elects not to participate. However, failure to provide information could detract from the Air Force's ability to improve its personnel policies.

USAF SCN 82-30 (Expires 30 November 1982)

Part 1: Background Information

For questions 1-9, please fill in the answer.

1. What is your age?

   _____ Years

2. What is your current base of assignment?

   _____

3. What is your 5-number duty AFSC (ignore prefixes and suffixes)?

   _____

4. What is your Social Security Number?

   _____

5. How long have you been in the Air Force?

   _____ Years _____ Months

6. How long have you been in your current job?

   _____ Years _____ Months

7. How long before your present enlistment ends?

   _____ Years _____ Months

8. How much longer do you intend to stay in the service beyond the present time?

   _____ Years _____ Months

9. How many persons—not including yourself—are dependent upon you for all or most of their financial support?

   _____ Persons

For questions 10-12, place a check mark next to the answer which best describes you.

10. What is your sex?

    _____ Male _____ Female

11. Which of the following do you consider yourself?

    _____ a. American Indian or Alaskan Native
    _____ b. Asian or Pacific Islander
    _____ c. Black, not of Hispanic origin
    _____ d. Hispanic
    _____ e. White, not of Hispanic origin
    _____ f. Other

12. What is the highest level of education you have attained?

    _____ a. Eighth grade or less
    _____ b. Some high school
    _____ c. High school graduate
    _____ d. G.E.D.
    _____ e. Technical, vocational, or business school
    _____ f. Some college
    _____ g. Bachelor's degree
    _____ h. Graduate degree

13. What is your current rank/grade?

    _____ a. E1/AB
    _____ b. E2/AMN
    _____ c. E3/A1C
    _____ d. E4/SrA/Sgt
    _____ e. E5/SSgt
    _____ f. E6/TSgt
    _____ g. E7/MSgt
    _____ h. E8/SMS
    _____ i. E9/CMS

Part 2. Describing Your Job

Listed below are a number of items which may or may not describe your present *job situation* in the Air Force. We are interested in the extent to which each of these statements describes your particular job situation. In this section we want to know about your job and not about your attitudes toward that job or the tasks you perform. Thus, as you complete this questionnaire, think about the job environment you work in, not how you feel about it or what you do in it.

Using the scale below, rate how accurately each statement describes your present job situation in the Air Force. In the space to the right of each statement, write the number which represents your rating. If any statement does not apply to your particular job, write the number "6" in the blank space to indicate that it does not apply. As you read through the list, you will note that some of the statements are similar. However, no two of them are exactly alike or have exactly the same meaning. You should simply respond to them as they come and not feel any special need to check back to make answers agree. Please be sure to respond to all of the items.

1 Not at All Accurate	2 Somewhat Accurate	3 Fairly Accurate	4 Very Accurate	5 Completely Accurate	6 Does Not Apply to My Job

1. The Air Force frequently does not provide me with the necessary tools and/or equipment when needed. _____
2. I often must work with and depend upon others who are not well trained. _____
3. I frequently cannot get necessary materials, supplies, and/or parts when I need them. _____
4. The information I must have in order to do my job is often not available. _____
5. I am frequently given unscheduled activities to work on which keep me from getting my job done. _____
6. I never have enough time to finish my duties without rushing. _____
7. The cooperation I am supposed to get from others frequently does not help me get my job done. _____
8. My job is typically harder to do because I have to make up for a shortage of capable personnel in my unit. _____
9. I am often hampered in doing my job by bad weather conditions (too hot, too cold, too wet, etc.). _____
10. It often takes me too long to do my job because I have to deal with "red tape." _____
11. I often cannot get my job done because policies, procedures, and instructions are changed without enough advance notice. _____
12. I cannot get the transportation I need to do my job when I need it. _____
13. I frequently do not have enough of the right tools and/or equipment to do my job. _____
14. The Air Force has not provided me with enough training to do my job. _____
15. The information I need to do my job is frequently wrong when I receive it. _____
16. The Air Force does not provide me with the necessary materials, supplies, and/or parts when I need them. _____
17. My work doesn't get done because my schedule often gets changed without enough advance notice. _____
18. The cooperation I am supposed to receive frequently does not come when I need it. _____
19. I typically am not given the time I need to do my job. _____
20. I often find that I have too much work to do in order to make up for a lack of qualified personnel in my unit. _____

1 Not at All Accurate	2 Somewhat Accurate	3 Fairly Accurate	4 Very Accurate	5 Completely Accurate	6 Does Not Apply to My Job

21. My job is frequently made more difficult by bad weather conditions (too hot, too cold, too wet, etc.). ____
22. My job is often made harder because I am not given enough advance notice about major changes in policies, procedures, and/or instructions. ____
23. I often cannot finish my job on time because of "red tape." ____
24. The required forms I need to complete to get my job done are often not available. ____
25. I often have to wait for a long time to get the transportation I need to do my job. ____
26. I often have to follow the instructions of others even though I am in a better position to know what should be done. ____
27. I frequently must work with faulty or damaged tools and/or equipment. ____
28. The lack of qualified people in my unit typically makes it difficult for me to get my job done. ____
29. I am not usually given enough training to handle new duties which are added to my job. ____
30. I frequently get job information from others which is inconsistent. ____
31. I am frequently provided with the wrong materials, supplies, and/or parts. ____
32. Long time delays keep me from getting my job done. ____
33. I frequently receive inconsistent policies, procedures, and instructions which make it difficult to do my job. ____
34. Too much "red tape" frequently keeps me from getting my job done on time. ____
35. I often cannot obtain the forms I need to get my job done. ____
36. Continually having to get the approval of others often keeps me from getting my job done. ____
37. The Air Force often provides me with tools and/or equipment which are poorly designed for getting my job done. ____
38. It is hard for me to get the help from others that I need to do my job. ____
39. My job is often made harder because I must follow specific policies, procedures, and instructions which I know to be wrong. ____
40. I must work with and depend upon others who are poorly trained to do their jobs. ____
41. I frequently have to wait on others to do their jobs before I can finish my own work. ____
42. Bad weather conditions (too hot, too cold, too wet, etc.) make doing my job more difficult. ____
43. There are frequent delays in getting the transportation I need in order to do my job. ____
44. The tools and/or equipment I must work with are often broken. ____
45. The cooperation I receive from others is often so poor that it doesn't help me get my job done. ____
46. The information I need to do my job is often incorrect when I receive it. ____
47. The inconsistent policies, procedures, and instructions I often receive make it difficult for me to get my job done. ____
48. The proper forms I need to do my job are often not available. ____
49. I am often not able to do my job well because I am not allowed to make those job decisions I can make best. ____

1 Not at All Accurate	2 Somewhat Accurate	3 Fairly Accurate	4 Very Accurate	5 Completely Accurate	6 Does Not Apply to My Job

50. The equipment I am given is poorly designed for getting my job done. _____

51. The replacement materials, supplies, and/or parts I receive are often the wrong ones. _____

52. I often do not have the information I must have at work when it is needed. _____

53. I often cannot get my work done because I am not told of schedule changes far enough ahead of time. _____

54. I often have to wait too long to get the help I need to do my job. _____

55. The incorrect policies, procedures, and instructions I often receive make it difficult for me to get my job done. _____

56. I frequently have trouble getting cooperation from others who are supposed to help me do my job. _____

57. The information I get from others which I need to do my job is often inconsistent. _____

Part 3. Identifying Work Responses

All of us have reasons for what we do. The following items are related to the reasons many people have for choosing to do the things they do at work. We are interested in what causes you to choose certain actions over others. Each of the items below may or may not describe a specific reason for what you do. For each item choose the answer which best describes how *often* each of the specific reasons given influences how you react to job problems. For example, if you always act a certain way "because you believe . . . you have no choice in deciding what to do?" then you should place a "5" indicating "Always" in the space next to that item.

Some of the item statements are similar to each other, but no two are exactly alike or mean exactly the same thing. Please answer each item using the scale below, and don't worry about trying to make your answers on similar items agree.

1 Never	2 Occasionally	3 Fairly Often	4 Very Often	5 Always

How often do you act the way you do because you believe . . .

1. you have no control over deciding how to handle problems at work? _____

2. other people are responsible for your job problems? _____

3. it is useless to try and get job problems solved? _____

4. that those responsible for job problems should get what they deserve? _____

5. the most important thing is to stay out of trouble? _____

6. that you should behave in a way that helps you the most? _____

7. there was nothing else that could be done about problems on the job? _____

8. that other people should take care of your job problems? _____

9. nothing changes when you try to get job problems handled? _____

10. that any blame for problems on the job should go to the people who cause the problems? _____

AD-A149 316 SITUATIONAL CONSTRAINTS IN THE AIR FORCE IDENTIFICATION 2/2
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SCHOOL OF MANAGEMENT AND ADMI.. E J O'CONNOR ET AL.
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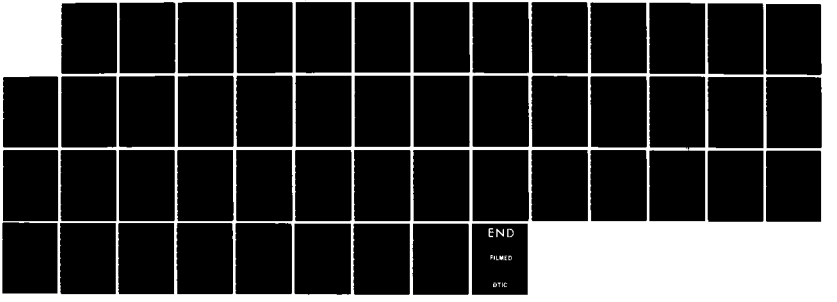

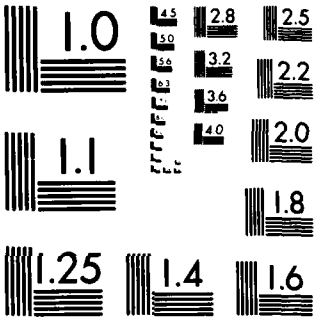

1 Never	2 Occasionally	3 Fairly Often	4 Very Often	5 Always

How often do you act the way you do because you believe . . .

11. In handling problems on the job in a way that keeps people off your back? _____
12. that you should behave in a way that does the most good for you? _____
13. making decisions about what to do about problems at work is beyond your control? _____
14. that your job problems should be taken care of by others? _____
15. it does no good to try and get job problems solved? _____
16. people shouldn't get away with causing problems on the job? _____
17. in making the least trouble for yourself? _____
18. that you should behave in a way that is in your own best interest? _____
19. that you should be responsible for solving job problems? _____
20. you do not have enough authority to handle job related problems? _____
21. that following standard procedures is the right way to handle job problems? _____
22. you should do what you are told to do at work? _____
23. you should solve job problems in such a way that they won't occur again? _____
24. it's your job to correct problems to keep them from happening again? _____
25. you have no say in getting job problems taken care of? _____
26. going "by the book" is the right way to deal with job problems? _____
27. you believe in following orders when it comes to dealing with job problems? _____
28. in making sure that job problems will not happen again? _____
29. you should make sure that problems get handled the way they are supposed to get handled? _____
30. those in authority over you keep you from taking care of job problems? _____
31. that following rules and regulations can solve problems on the job? _____
32. in handling problems at work the way you are told? _____
33. your solutions to job problems keep those problems from occurring in the future? _____

Part 4. Removing Work Obstacles

All of us sometimes face various obstacles at work which hinder us from doing our jobs. Examples of such work obstacles include having improper tools, broken equipment, or receiving needed information too late. Think of the obstacles you must work around to do your job. Some of these obstacles could probably be removed by your immediate supervisor, while *he/she probably can't do anything about the others.* Each of the items below asks you to consider the work obstacles you typically face and your beliefs about what your immediate supervisor can do to remove them. Write the number in the blank space which represents the extent to which you agree or disagree with each item.

1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree

1. My immediate supervisor can do a lot more than he/she does to remove obstacles at work which *hinder* my performance. _____
2. My immediate supervisor typically removes most of the obstacles I face at work. _____
3. My immediate supervisor typically fails to remove work obstacles which I *know he/she could remove if he/she* wanted to. _____
4. Because of my immediate supervisor's actions, I typically face few severe *obstacles at work.* _____

Part 5. Personal Feelings About Your Job

Each of the statements below is something that a person might say about his or her job. Indicate your own personal *feelings* about your job by marking how much you agree with each of the statements. Write a number in the blank for each statement which represents your extent of agreement, using the scale below.

1 Disagree Strongly	2 Disagree	3 Disagree Slightly	4 Neutral	5 Agree Slightly	6 Agree	7 Agree Strongly

1. Overall, I experience very little frustration at work. _____
2. Generally speaking, I am very satisfied with this job. _____
3. Trying to get my job done is a very frustrating experience. _____
4. I frequently think of leaving this job as soon as I can. _____
5. Being frustrated comes with this job. _____
6. I am generally satisfied with the kind of work I do in this job. _____

Part 6. Satisfaction with Your Job

Now please indicate how *satisfied* you are with each aspect of your job listed below. Once again, write the appropriate number in the blank beside each statement.

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfied	Extremely Satisfied

1. The amount of pay and fringe benefits I receive _____
2. The degree of respect and fair treatment I receive from my boss _____
3. The amount of support and guidance I receive from my supervisor _____
4. The degree to which I am fairly paid for what I contribute to this organization _____
5. The overall quality of the supervision I receive in my work _____

Part 7. Beliefs About Life Events

The following items (1-23) each contain two statements (a and b) involving beliefs that you may have about various life situations. You may find yourself agreeing to some extent with both statements for each item. None the less, please circle the letter (a or b) in each pair of statements which represents the one statement with which you *most* agree.

1. a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.
2. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
   b. There will always be wars, no matter how hard people try to prevent them.
3. a. In the long run people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
4. a. The idea that teachers in technical school are unfair to students is nonsense.
   b. Most students don't realize the extent to which their technical school grades are influenced by accidental happenings.
5. a. Without the right breaks one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.
6. a. No matter how hard you try some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.
7. a. I have often found that what is going to happen will happen.
   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
8. a. For the well prepared student there is rarely, if ever, an unfair test in technical school.
   b. In technical school, exam questions tend to be so unrelated to course work that studying is really useless.
9. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
   b. Getting a good job depends mainly on being in the right place at the right time.
10. a. The average citizen can have an influence in government decisions.
    b. This world is run by the few people in power, and there is not much the little guy can do about it.

11. a. When I make plans, I am almost certain that I can make them work.
    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

12. a. In my case getting what I want has little or nothing to do with luck.
    b. Many times we might just as well decide what to do by flipping a coin.

13. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
    b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

14. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
    b. By taking an active part in political and social affairs the people can control world events.

15. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
    b. There really is no such thing as "luck."

16. a. It is hard to know whether or not a person really likes you.
    b. How many friends you have depends on how nice a person you are.

17. a. In the long run the bad things that happen to us are balanced by the good ones.
    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

18. a. With enough effort we can wipe out political corruption.
    b. It is difficult for people to have much control over the things politicians do in office.

19. a. When I was in school, I sometimes couldn't understand how teachers arrived at the grades they gave.
    b. There was a direct connection between how hard I studied in school and the grades I got.

20. a. Many times I feel that I have little influence over the things that happen to me.
    b. It is impossible for me to believe that chance or luck plays an important role in my life.

21. a. People are lonely because they don't try to be friendly.
    b. There's not much use in trying too hard to please people, if they like you, they like you.

22. a. What happens to me is my own doing.
    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

23. a. Most of the time I can't understand why politicians behave the way they do.
    b. In the long run the people are responsible for bad government on a national as well as on a local level.

Part 8. Comments

Please use the space below to provide any further information you consider important regarding the material in this questionnaire.

APPENDIX C: DEMOGRAPHIC INFORMATION FOR PHASE III AND IV AIRMEN AND SUPERVISORS

Demographic information for the Phase III and IV samples are provided in Table C-1 for subordinate personnel and in Table C-2 for their immediate supervisors. The sample of subordinate personnel included 554 males and 148 females, with an average age of 22.8 years. Respondents averaged less than one dependent each. Over half the sample (57%) was white (not of Hispanic origin) and approximately one-fourth was black. The education of participants indicated at least a high school education in almost all cases, with many persons (41%) having at least some college background.

On average, these subordinates had been in the Air Force for 3 years and on their current jobs for 2 years. No one who had been on their current job for less than 3 months or in the Air Force for 9 years or more was included in the sample. Most (85%) were E4's and E5's. They indicated that, on average, they planned to stay in the Air Force for approximately 5 years beyond their current enlistment. The average AFQT score for this sample was 54.10.

A total of 269 supervisors participated in this investigation. They included 231 males and 38 females. The average age was 30.7 years. Over half (60%) were white (not of Hispanic origin) and approximately one-fourth (27%) of them were black. Almost all persons had a minimum of a high school background, with approximately 60 percent having had at least some college education.

On average, supervisors had been in the Air Force for just under 11 years, and on their present jobs for just over 4-1/2 years. No supervisor

who had been on his/her current job for less than 3 months was included in the sample. On average, these supervisors had worked in the same jobs currently being done by their immediate subordinates for approximately 6 years. Most supervisors were at or above the rank of E5, although 47 (18%) of them were E4s and 6 (2%) were civilians. Each supervisor rated the performance of between 1 and 10 subordinate airmen.

Table C-1

Demographic Characteristics: Phase III and IV Subordinates

Variable	Mean	Standard Deviation	N
Subordinate Age	22.77	3.65	701
Total Months in Air Force	36.78	36.06	700
Total Months in Job	23.93	21.57	702
Enlistment Duration	27.10	15.56	746
Reenlistment Intentions	59.57	80.40	748
No. of Dependents	.85	1.13	743
AFQT Score	54.15	18.08	765

Occupational Specialty	N
AFS = 423X4	59
AFS = 571X0	70
AFS = 631X0	84
AFS = 645X1	82
AFS = 732X0	68
AFS = 811X0	100
AFS = 902X0	282
Total	745

Sex	N
Males	554
Females	148
Total	702

Race	N
American Indian/Alaskan Native	7
Asian or Pacific Islander	11
Black, not of Hispanic origin	177
Hispanic	68
White, not of Hispanic origin	397
Other	38
Total	698

Continued on next page

Education	N
Some high school	2
High school graduate	305
G.E.D.	53
Technical, vocational or business school	46
Some college	272
Bachelor's degree	8
Graduate degree	2
Total	688

Rank	N
E1/AB	5
E2/AMN	60
E3/A1C	334
E4/SrA/Sgt	238
E5/SSgt	34
Total	671

Table C-2

Demographic Characteristics: Phase III and IV Supervisors

Variable	Mean	Standard Deviation	N
Supervisor's Age	30.73	6.13	268
Total Months in Air Force	130.16	67.42	267
Total Months in Job	55.7	55.6	268
Total Months Experience in Their Subordinate's Job	55.78	55.62	268

Occupational Specialty	N
AFS = 423X4	25
AFS = 571X0	27
AFS = 631X0	30
AFS = 645X1	40
AFS = 732X0	35
AFS = 811X0	37
AFS = 902X0	67
Total	261

Sex	N
Males	231
Females	38
Total	269

Race	N
American Indian/Alaskan Native	5
Asian or Pacific Islander	3
Black, not of Hispanic origin	72
Hispanic	16
White, not of Hispanic origin	162
Other	10
Total	268

Continued on next page

Education	N
Eighth Grade or Less	1
Some high school	1
High school graduate	76
G.E.D.	13
Technical, vocational or business school	16
Some college	149
Bachelor's degree	12
Graduate degree	1
Total	269

Rank	N
Civilian	6
E4	47
E5	122
E6	58
E7	26
E8	4
E9	4
Total	267

APPENDIX D: PHASE III/IV

UNITED STATES AIR FORCE
WORK QUESTIONNAIRE

As a member of the Air Force, you probably encounter situations at work which occasionally prevent you from doing your job as well as you know it could be done. This questionnaire, developed for the Air Force Human Resources Laboratory, is designed to identify factors in operational Air Force work environments which might hinder productivity. To identify such factors, you will be asked to respond to questions concerned with the description of your job, your responses to various work situations, and related issues.

In your day-to-day activities, you, more than anyone else, are in the best position to become aware of factors affecting your own work. Thus, your assistance in completing this questionnaire is very important. In completing this survey, you can make a meaningful contribution to the development of Air Force policies and practices designed to increase mission effectiveness and your own sense of satisfaction and accomplishment on your job.

The responses you provide will be kept absolutely confidential and will only be used for research purposes. Your individual responses will not be shared with your supervisor or anyone else in your chain of command nor will they be used in evaluating your job performance or for personal evaluations of any type.

GENERAL INSTRUCTIONS

All responses should be made directly in this booklet, using either a pen or a pencil. Completing the questionnaire is not difficult and should take less than one hour. There are no right or wrong answers and you need not spend of time thinking about the best answer. Just indicate what first comes to mind.

For some questions, or statements, you will be asked to fill in blanks, or to circle a number or letter to indicate your response. For others, you will be asked to enter a number in a blank space next to each item corresponding to statements in various response scales which are clearly displayed in bold type Specific instructions are provided, as needed, throughout the questionnaire. Please be sure to respond to <u>all</u> of the items. A personal comments section is also included at the end of this questionnaire. If you have any questions or comments concerning this questionnaire, contact:

Tom Watson
AFHRL/MODF
Brooks AFB, TX 78235
or call Autovon 240-3551

Again, thanks for your participation in this study.

<u>Privacy Act Statement</u>. U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation. E.O. 9397, 22 Nov. 43, Numbering System for Federal Accounts relating to Individual Persons. Information provided by respondents will be used solely for Air Force personnel research purposes. All information provided by individual respondents will be treated confidentially. Disclosure of this information is voluntary. No adverse action may be taken against any individual who elects not to participate. However, failure to provide information could detract from the Air Force's ability to improve its personnel policies.

PART 1: BACKGROUND INFORMATION

For questions 1-10, please fill in the answer.

1. What is your name? (Please print)

_____

2. What is your age?

____ Years

3. What is your current base of assignment?

_____

4. What is your 5-number duty AFSC (ignore prefixes and suffixes)?

_____

5. What is your Social Security Number?

_____

6. How long have you been in the Air Force?

____ Years ____ Months

7. How long have you been in your current job?

____ Years ____ Months

8. How long before your present enlistment ends?

____ Years ____ Months

9. How much longer do you intend to stay in the service beyond the present time?

____ Years ____ Months

10. How many persons-not including yourself- are dependent upon you for all or most of their financial support?

____ Persons

For questions 11-14, place a check mark next to the answer which best describes you.

11. What is your sex?

____ Male ____ Female

12. Which of the following do you consider yourself?

____ a. American Indian or Alaskan Native

____ b. Asian or Pacific Islander

____ c. Black, not of Hispanic origin

____ d. Hispanic

____ e. White, not of Hispanic origin

____ f. Other

13. What is the highest level of education you have attained?

____ a. Eighth grade or less

____ b. Some high school

____ c. High school graduate

____ d. G.E.D.

____ e. Technical, vocational, or business school

____ f. Some college

____ g. Bachelor's degree

____ h. Graduate degree

14. What is your current rank/grade?

____ a. E1/AB

____ b. E2/AMN

____ c. E3/A1C

____ d. E4/SrA/Sgt

____ e. E5/SSgt

____ f. E6/TSgt

____ g. E7/MSgt

____ h. E8/SMS

____ i. E9/CMS

PART 2. DESCRIBING YOUR JOB

Listed below are a number of items which may or may not describe your present job situation in the Air Force. We are interested in the extent to which each of these statements describes your particular job situation. In this section we want to know about your job and not about your attitudes toward that job or the tasks you perform. Thus, as you complete this part of the questionnaire, think about the job environment you work in, not how you feel about it or what you do in it.

Using the rating scale below, rate how accurately each statement describes your present job situation in the Air Force. In the space to the right of each statement, write the number which represents your rating. If any statement does not apply to your particular job, write the number "6" in the blank space to indicate that it does not apply. As you read through the list, you will note that some of the statements are similar. However, no two of them are exactly alike or have exactly the same meaning. You should simply respond to them as they come and not feel any special need to check back to make answers agree. Please be sure to respond to all of the items.

1	2	3	4	5	6
NOT AT ALL ACCURATE	SOMEWHAT ACCURATE	FAIRLY ACCURATE	VERY ACCURATE	COMPLETELY ACCURATE	DOES NOT APPLY TO MY JOB

1. I often must work with and depend upon others who are not well trained. ____
2. I frequently cannot get necessary materials, supplies, and/or parts when I need them. ____
3. I never have enough time to finish my duties without rushing. ____
4. I frequently do not have enough of the right tools and/or equipment to do my job. ____
5. The Air Force does not provide me with the necessary materials, supplies, and/or parts when I need them. ____
6. My work doesn't get done because my schedule often gets changed without enough advance notice. ____
7. The cooperation I am supposed to receive frequently does not come when I need it. ____
8. I typically am not given the time I need to do my job. ____
9. I often find that I have too much work to do in order to make up for a lack of qualified personnel in my unit. ____
10. My job is frequently made more difficult by bad weather conditions (too hot, too cold, too wet, etc.). ____
11. My job is often made harder because I am not given enough advance notice about major changes in policies, procedures and/or instructions. ____

1	2	3	4	5	6
NOT AT ALL ACCURATE	SOMEWHAT ACCURATE	FAIRLY ACCURATE	VERY ACCURATE	COMPLETELY ACCURATE	DOES NOT APPLY TO MY JOB

12. I often cannot finish my job on time because of "red tape." ____

13. I often have to wait for a long time to get the transportation I need to do my job. ____

14. I often have to follow the instructions of others even though I am in a better position to know what should be done. ____

15. I frequently must work with faulty or damaged tools and/or equipment. ____

16. The lack of qualified people in my unit typically makes it difficult for me to get my job done. ____

17. I am not usually given enough training to handle new duties which are added to my job. ____

18. I frequently get job information from others which is inconsistent. ____

19. I am frequently provided with the wrong materials, supplies, and/or parts. ____

20. Long time delays keep me from getting my job done. ____

21. I am frequently given unscheduled activities to work on which keep me from getting my job done. ____

22. I frequently receive inconsistent policies, procedures, and instructions which make it difficult to do my job. ____

23. Too much "red tape" frequently keeps me from getting my job done on time. ____

24. I often cannot obtain the forms I need to get my job done. ____

25. The Air Force often provides me with tools and/or equipment which are poorly designed for getting my job done. ____

26. It is hard for me to get the help from others that I need to do my job. ____

27. I must work with and depend upon others who are poorly trained to do their jobs. ____

28. Bad weather conditions (too hot, too cold, too wet, etc.) make doing my job more difficult. ____

29. There are frequent delays in getting the transportation I need in order to do my job. ____

1	2	3	4	5	6
NOT AT ALL ACCURATE	SOMEWHAT ACCURATE	FAIRLY ACCURATE	VERY ACCURATE	COMPLETELY ACCURATE	DOES NOT APPLY TO MY JOB

30. Continually having to get the approval of others keeps me from getting my job done. ____

31. The tools and/or equipment I must work with are often broken. ____

32. The cooperation I receive from others is often so poor that it doesn't help me get my job done. ____

33. The information I need to do my job is often incorrect when I receive it. ____

34. The inconsistent policies, procedures, and instructions I often receive make it difficult for me to get my job done. ____

35. The proper forms I need to do my job are often not available. ____

36. I am often not able to do my job well because I am not allowed to make those job decisions I can make best. ____

37. The equipment I am given is poorly designed for getting my job done. ____

38. I often do not have the information I must have at work when it is needed. ____

39. I often cannot get my work done because I am not told of schedule changes far enough ahead of time. ____

40. The incorrect policies, procedures, and instructions I often receive make it difficult for me to get my job done. ____

41. I frequently have trouble getting cooperation from others who are supposed to help me do my job. ____

42. The information I get from others which I need to do my job is often inconsistent. ____

PART 3. REACTIONS TO WORK

For each of the items in this section, circle the letter of the response alternative which best represents your point of view.

1. How often do you feel you would be better off working under another supervisor?

   a. Almost always
   b. Frequently
   c. Occasionally
   d. Seldom
   e. Never

Circle the letter of the response alternative which best represents your view.

2. How does the kind of work you do affect you?

   a. Greatly discourages me from doing my best
   b. Somewhat discourages me from doing my best
   c. Makes little difference
   d. Somewhat encourages me to do my best
   e. Greatly encourages me to do my best

3. How often do you feel that your work load is too heavy?

   a. Never
   b. Seldom
   c. Sometimes
   d. Often
   e. Almost always

4. At the end of your current enlistment, how likely are you to reenlist?

   a. Definitely will not reenlist
   b. Probably will not reenlist
   c. Probably will reenlist
   d. Definitely will reenlist
   e. Will retire (I will have completed at least 20 years of service)

5. How do you generally feel about the people you work with?

   a. They are the best group I could ask for
   b. I like them a great deal
   c. I like them fairly well
   d. I have no feeling one way or the other
   e. I don't particularly care for them

6. How much pride can you take in the appearance of your work place?

   a. A great deal
   b. Quite a deal
   c. Some
   d. Little
   e. Very little

7. How often when you finish a day's work do you feel you've accomplished something really worthwhile?

   a. Almost always
   b. Often
   c. Sometimes
   d. Seldom
   e. Never

Circle the letter of the response alternative which best represents your view.

8. How satisfied are you with the supervision you receive?

   a. Very satisfied
   b. Somewhat satisfied
   c. Neither satisfied nor dissatisfied
   d. Somewhat dissatisfied
   e. Very dissatisfied

9. How is your overall attitude toward your job influenced by the people you work with?

   a. Very favorably influenced
   b. Somewhat favorably influenced
   c. Not influenced one way or the other
   d. Somewhat unfavorably influenced
   e. Very unfavorably influenced

10. How do you feel about your physical working conditions?

   a. Very satisfied
   b. Somewhat satisfied
   c. Neither satisfied nor dissatisfied
   d. Somewhat dissatisfied
   e. Very dissatisfied

11. What kind of influence does the way you are treated by your supervisor have on your overall attitude toward your job?

   a. Very unfavorable influence
   b. Somewhat unfavorable influence
   c. No real effect
   d. Somewhat favorable influence
   e. Very favorable influence

12. How does the kind of work you do influence your overall attitude toward your job?

   a. Very unfavorably
   b. Somewhat unfavorably
   c. No influence one way or the other
   d. Somewhat favorably
   e. Very favorably

13. How does the amount of work you're expected to do influence the way you do your job?

   a. It never allows me to do a good job
   b. It seldom allows me to do a good job
   c. It has no effect on how I do my job
   d. It usually allows me to do a good job
   e. It always allows me to do a good job

Circle the letter of the response alternative which best represents your view.

14. How does the example your fellow workers set affect your work habits?

a. Greatly discourages me from working hard
b. Somewhat discourages me from working hard
c. Has little effect on me
d. Somewhat encourages me to work hard
e. Greatly encourages me to work hard

15. How do your physical working conditions affect the way you do your job;

a. They help me a great deal
b. They help me a little
c. They make little difference
d. They tend to make it difficult
e. They make it very difficult

16. How much do the efforts of your supervisor add to the success of your work unit?

a. A great deal
b. Quite a bit
c. Some
d. Very little
e. Hardly any

17. How much of the work you do stirs up real enthusiasm on your part?

a. Nearly all of it
b. More than half of it
c. About half of it
d. Less than half of it
e. Almost none of it

18. How do your physical working conditions influence your overall attitude toward your job?

a. Very unfavorably
b. Somewhat unfavorably
c. No influence one way or the other
d. Somewhat favorably
e. Very favorably

19. How much does the way co-workers handle their jobs add to the success of your unit?

a. Hardly any
b. Very little
c. Some
d. Quite a bit
e. A great deal

20. Which statement most accurately describes the traits of your supervisor?

a. Many more good traits than bad ones
b. More good traits than bad ones
c. About the same number of good traits as bad ones
d. More bad traits than good ones
e. Many more bad traits than good ones

Circle the letter of the response alternative which best represents your point of view.

21. How does the amount of work you're expected to do influence your overall attitude toward your job?

    a. Very favorably
    b. Somewhat favorably
    c. No influence one way or the other
    d. Somewhat unfavorably
    e. Very unfavorably

22. How are the physical working conditions where you work?

    a. Very unpleasant
    b. Unpleasant
    c. Neither pleasant nor unpleasant
    d. Pleasant
    e. Very pleasant

23. How much friction is there in your work unit?

    a. A great deal
    b. Quite a bit
    c. Some
    d. Very little
    e. Hardly any

24. How do you feel about the kind of work you do?

    a. Dislike it a great deal
    b. Dislike it somewhat
    c. Neither like nor dislike it
    d. Like it somewhat
    e. Like it a great deal

25. How does the supervision you receive affect how hard you are willing to work?

    a. Greatly discourages me from giving extra effort
    b. Somewhat discourages me from giving extra effort
    c. Has little influence on me
    d. Somewhat encourages me to give extra effort
    e. Greatly encourages me to give extra effort

26. For the work you do, how are the physical working conditions?

    a. Very poor
    b. Relative poor
    c. Neither good nor poor
    d. Relatively good
    e. Very good

Circle the letter of the response alternative which best represents your point of view.

27. How do you feel about the amount of work you're expected to do?

a. Very dissatisfied
b. Somewhat dissatisfied
c. Neither satisfied nor dissatisfied
d. Somewhat satisfied
e. Very satisfied

28. How many of the things you do on your job do you enjoy?

a. Nearly all
b. More than half
c. About half
d. Less than half
e. Almost none

PART 4. DESCRIPTION OF WORK SITUATION

All of us sometimes face various obstacles or constraints at work which hinder us from doing our jobs. Examples of such work obstacles include having improper tools, broken equipment, or receiving needed information too late. Think of the obstacles you must work around to do your job. Then answer the following questions which ask you to describe your reactions to the obstacles you face in your work situation.

Please answer each item using the scale below. In the space to the right of each statement, write the number which represents the degree to which you agree or disagree with that item.

1	2	3	4	5	6	7
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

1. I am usually quite effective when performing my job. ____
2. My immediate supervisor has the power to greatly reduce the obstacles which hinder my performance at work. ____
3. When I perform my job, I feel in control. ____
4. I usually feel quite productive when performing my job. ____
5. My opinion of myself goes up when I do this job well. ____
6. Trying to get my job done is a very frustrating experience. ____

1	2	3	4	5	6	7
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

7. I am generally satisfied with the kind of work I do in this job. ____

8. Because of my immediate supervisor's actions, I typically face few severe obstacles at work. ____

9. I am usually able to complete my work efficiently. ____

10. I am often hindered from doing my job by obstacles or constraints which are beyond my control. ____

11. I feel a great sense of personal satisfaction when I do this job well. ____

12. When I do my job I am able to control my own level of performance. ____

13. My immediate supervisor would have to have more power and influence in order to be able to reduce the obstacles I face at work. ____

14. Generally speaking, I am very satisfied with this job. ____

15. I feel bad and unhappy when I discover that I have performed poorly on this job. ____

16. My immediate supervisor does very little to remove the obstacles I face at work. ____

17. While on my job, I often feel quite useless.

18. My performance is clearly held down by various obstacles or constraints on my job which should be removed. ____

19. I am a reliable worker. ____

20. Being frustrated comes with this job.

21. My immediate supervisor typically removes most of the obstacles I face at work. ____

22. Overall, I experience very little frustration at work. ____

23. Very often, I feel that my performance is affected by factors that I cannot influence. ____

1	2	3	4	5	6	7
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

24. My own feelings generally are <u>not</u> affected much one way or the other by how well I do on this job. ____

25. The Air Force has done everything possible to insure my talents and motivation are not hindered by obstacles or constraints. ____

26. I frequently think of leaving this job as soon as I can. ____

27. My performance on my job is directly under my own control. ____

28. My immediate supervisor does not have the power and influence needed to greatly reduce the kind of work obstacles I face on my job. ____

29. Sometimes, I feel worthless while performing my job. ____

Part 5. WORK GROUP SCALE

These questions are being asked to discover what you feel is correct behavior in your work group. Notice that the questions are all very similar. However, they are not the same. For the information you provide to be useful it is important that you read and answer each question carefully, circling the number that best represents your feelings about your group. Please answer each question by circling the number which best represents the degree to which you approve or disapprove of that statement.

	STRONGLY DISAPPROVE 1	DISAPPROVE 2	SLIGHTLY DISAPPROVE 3	NEITHER APPROVE NOR DISAPPROVE 4	SLIGHTLY APPROVE 5	APPROVE 6	STRONGLY APPROVE 7
IF A MEMBER OF MY WORK GROUP ...							
1. ... always did his/her job poorly, I would	1	2	3	4	5	6	7
2. ... usually did his/her job poorly, I would	1	2	3	4	5	6	7
3. ... often did his/her job poorly, I would	1	2	3	4	5	6	7
4. ... occasionally did his/her job poorly, I would	1	2	3	4	5	6	7
5. ... infrequently did his/her job poorly, I would	1	2	3	4	5	6	7
6. ... hardly ever did his/her job poorly, I would	1	2	3	4	5	6	7
7. ... never did his/her job poorly, I would	1	2	3	4	5	6	7

PART 6. OCCUPATIONAL ATTITUDE INFORMATION

This part of the questionnaire asks you to describe how you feel about specific aspects of your present job. Read each of the following statements carefully. Then decide for yourself whether you are satisfied or dissatisfied with that aspect of your present job. Use the scale below to respond to each statement. In the space to the right of each statement, write the number which represents the degree to which you are satisfied or dissatisfied with that aspect of your job.

EXTREMELY DISSATISFIED	VERY DISSATISFIED	MODERATELY DISSATISFIED	SLIGHTLY DISSATISFIED	SLIGHTLY SATISFIED	MODERATELY SATISFIED	VERY SATISFIED	EXTREMELY SATISFIED
1	2	3	4	5	6	7	8

1. The amount of paperwork required to do your job. ____
2. The training you have received to perform your current job. ____
3. The availability of necessary material or supplies. ____
4. Challenge provided by your job. ____
5. The amount of support and guidance you receive from your supervisor. ____
6. The similarity between your training and the requirements of your job. ____
7. The priority given to your requests for supplies. ____
8. Amount of interesting work performed. ____
9. The instructional methods used in your training. ____
10. The amount of "red tape" connected with your work. ____
11. Feeling of accomplishment you get from your work. ____
12. Chance to use your military training. ____
13. The condition of the tools or equipment you use ____
14. The importance of your work. ____
15. The overall quality of the supervision you receive in your work. ____
16. The promptness with which equipment malfunctions are handled. ____
17. The way your job uses your abilities. ____
18. The opportunity to use up-to-date equipment. ____

PART 7. COMMENTS

Please use the space below to provide any further information you consider important regarding the material in this questionnaire.

APPENDIX E: PHASE III/IV

UNITED STATES AIR FORCE

PERFORMANCE QUESTIONNAIRE

In this section of the questionnaire, you are to provide information regarding the job worked on by the type of employees you have just evaluated. These questions do not ask for further information about those particular employees, but instead request that you provide information about the job done by people who are in that job classification. Therefore, the questions below are to be filled out only once to describe that particular job classification in general and not each individual employee you have evaluated.

General Instructions

All responses should be made directly in this booklet, using either a pen or pencil. Completing the questionnaire is not difficult and should take less than a half-hour. There are no right or wrong answers and you need not spend a lot of time thinking about the best answer. Just indicate what first comes to mind. For some questions, you will be asked to fill in blanks or to circle a number which indicates the degree to which you approve or disapprove of each of a series of statements. For others, you will be asked to enter a number in a blank space next to each item corresponding to statements in various response scales which are clearly displayed in bold type. Specific instructions are provided as needed, throughout the questionnaire. Please be sure to respond to all of the items. A personal comments section is also included at the end of this questionnaire. If you have any questions or comments concerning this questionnaire, contact:

Tom Watson
AFHRL/MODF
Brooks AFB, TX 78235

or call Autovon 240-3551

Again, thanks for your participation in this study.

Privacy Act Statement. U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation E.O. 9397, 22 Nov 43. Numbering System for Federal Accounts Relating to Individual Persons. Information provided by respondents will be used solely for Air Force personnel research purposes. All information provided by individual respondents will be treated confidentially. Disclosure of this information is voluntary. No adverse action may be taken against any individual who elects not to participate. However, failure to provide information could detract from the Air Force's ability to improve its personnel policies.

PART 1. BACKGROUND INFORMATION

For questions 1-7, please fill in the answer.

1. What is your name? (Please Print)

_____

2. What is your age?

_____

3. What is your current base of assignment?

_____

4. What is your 5-number duty AFSC (ignore prefixes and suffixes)?

_____

5. What is your Social Security number?

_____

6. How long have you been in the Air Force?

_____ Years _____Months

7. How long have you been in your current job?

_____ Years _____Months

For questions 8-11, place a check mark next to the answer which best describes you.

8. What is your sex?

_____Male _____Female

9. Which of the following do you consider yourself?

_____ a. American Indian or Alaskan Native

_____ b. Asian or Pacific Islander

_____ c. Black, not of Hispanic origin

_____ d. Hispanic

_____ e. White, not of Hispanic origin

_____ f. Other

10. What is the highest level of education you have attained?

_____ a. Eighth grade or less

_____ b. Some high school

_____ c. High school graduate

_____ d. G.E.D.

_____ e. Technical, vocational, or business school

_____ f. Some college

_____ g. Bachelor's degree

_____ h. Graduate degree

11. What is your current rank/grade/status?

_____ a. E1

_____ b. E2

_____ c. E3

_____ d. E4

_____ e. E5

_____ f. E6

_____ g. E7

_____ h. E8

_____ i. E9

_____ j. O1

_____ k. O2

_____ l. O3

_____ m. O4

_____ n. O5

_____ o. O6

_____ p. Civilian

PART 2. JOB INFORMATION

Previously collected information indicates that persons assigned to the Medical Specialist job perform the six job duties listed below. In this section, use the scales provided to indicate how critical each job duty is for the Medical Specialist job. Do so by indicating your beliefs concerning (1) the frequency of each duty, (2) the importance of each duty, (3) the severity of the consequences for making errors in each of these activities, and (4) the level of difficulty involved in performing each of these duties.

Section A: Frequency

Rate each of the six job duties listed below on the 0-7 rating scale provided. Your ratings should reflect your beliefs regarding how FREQUENTLY each of these job duties is typically performed on the Medical Specialist job. Fill in the blank next to each listed job duty with the one number which best reflects your beliefs concerning how often each of these job duties is performed.

0	1	2	3	4	5	6	7
	Very Rarely		Some of the Time		Fairly Often		Very Often

Rate how FREQUENTLY each of the following job duties is performed:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment. ____
2. Performing administrative or materiel procedures. ____
3. Preparing for nursing procedures. ____
4. Performing clinical or emergency room procedures. ____
5. Performing ward services. ____
6. Preparing for and administering injections. ____

Section B: Importance

Rate each of the six job duties listed below using the 0-7 rating scale provided. Your ratings should reflect your beliefs regarding how IMPORTANT each activity is to overall performance on the Medical Specialist job. Fill in the blank next to each listed job duty with the one number which best reflects your beliefs concerning the importance of that job duty.

0	1	2	3	4	5	6	7
Of No Importance		Moderately Important		Very Important		Of Greatest Importance	

Rate the IMPORTANCE of the following job duties:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment. ____
2. Performing administrative or materiel procedures. ____
3. Preparing for nursing procedures. ____
4. Performing clinical or emergency room procedures. ____
5. Performing ward services. ____
6. Preparing for and administering injections. ____

Section C: Consequences of Error

Once again, we want you to rate each job duty. This time, however, we want you to rate each of these activities in terms of your beliefs about how serious it would be to make an error when performing each activity. In other words, as far as ongoing operations are concerned, how serious would an Airman's mistakes be for the overall performance of your unit if they occurred while he/she was carrying out each of these activities?

Fill in the blank next to each listed job duty with the one number which best reflects your beliefs concerning the severity of the consequences of making an error on each job duty.

0	1	2	3	4	5	6	7
No Meaningful Consequences		Slightly Serious Consequences		Moderately Serious Consequences		Extremely Serious Consequences	

Rate the CONSEQUENCES OF ERROR for each of the following job duties:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment. ____
2. Performing administrative or materiel procedures. ____
3. Preparing for nursing procedures. ____
4. Performing clinical or emergency room procedures. ____
5. Performing ward services. ____
6. Preparing for and administering injections. ____

Section D: Level of Difficulty

The next set of ratings asks you to estimate the level of difficulty of each of the job duties frequently performed on the Medical Specialist job. Rate each of the job duties on the 0-7 point rating scale provided. Fill in the blank next to each listed job duty with the one number which best reflects your beliefs concerning how difficult it is to do each of these activities.

0	1	2	3	4	5	6	7
Extremely Easy To Do		Slightly Difficult To Do		Moderately Difficult To Do		Extremely Difficult To Do	

Rate the LEVEL OF DIFFICULTY of each of the following job duties:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment. ____
2. Performing administrative or materiel procedures. ____
3. Preparing for nursing procedures. ____
4. Performing clinical or emergency room procedures. ____
5. Performing ward services. ____
6. Preparing for and administering injections. ____

PART 3. PERFORMANCE STANDARDS

Persons assigned to the Medical Specialist job often perform the following major job duties:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment.

2. Performing administrative or materiel procedures.

3. Preparing for nursing procedures.

4. Performing clinical or emergency room procedures.

5. Performing ward services.

6. Preparing for and administering injections.

The following questions do not ask for information about any of your particular subordinates. Rather, we want you to describe the kind of person it takes to do this job at different performance levels. In particular, we would like you to describe the type of person who can be expected to do these specific job duties at an "average" level of performance as well as at both the "very good" and "very poor" ends of the performance continuum.

Provide judgments to all of the following questions. We realize that these judgments may be difficult for you to make. However, keep in mind that your estimates will be averaged together with those of other supervisors of the Medical Specialist job. Thus, errors produced by estimates which are too high or too low will tend to be averaged out, providing more accurate final estimates.

Section A: Average Performance

Based on your experience with the Medical Specialist job, we would like you to estimate and describe the kind of background that you believe is typical for a person who performs the 6 specific job duties described above at an AVERAGE level of performance. On the rating scales given below, describe that typical AVERAGE performer in terms of his/her (1) rank and (2) years of service beyond technical training. That is, please estimate the likely rank and years of service for the typical person who performs these job duties at an AVERAGE level. Respond by circling <u>one</u> Rank and <u>one</u> Years of Service alternative which best reflects your estimates.

(1) Rank: E2 E3 E4 E5 E6 E7

(2) Years of Service (beyond technical training):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Section B: High Performer

Based on your experience with the Medical Specialist job, we would like you to estimate and describe the kind of background that you believe is typical for a person who performs the 6 specific job duties described above at a HIGH level of performance. By a HIGH performer we mean any person who performs these job duties better than 85% of all those persons who do this job, with only 15% of all persons able to do these job duties better. On the rating scales given below, describe that typical HIGH performer in terms of his/her (1) rank and (2) years of service beyond technical training. That is, please estimate the likely rank and years of service for the typical person who performs these job duties at a HIGH level. Respond by circling one Rank and one Years of Service alternative which best reflects your estimates.

(1) Rank: E2 E3 E4 E5 E6 E7

(2) Years of Service (beyond technical training):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Section C: Low Performer

Based on your experience with the Medical Specialist job, we would like you to estimate and describe the kind of background that you believe is typical for a person who performs the 6 specific job duties described above at a LOW level of performance. By a LOW performer we mean any person who performs these job duties better than only 15% of all those persons who do this job, with 85% of all persons able to do these job duties better. On the rating scales given below, describe that typical LOW performer in terms of his/her (1) rank and (2) years of service beyond technical training. That is, please estimate the likely rank and years of service for the typical person who performs these job duties at a LOW level. Respond by circling one Rank and one Years of Service alternative which best reflects your estimates.

(1) Rank: E2 E3 E4 E5 E6 E7

(2) Years of Service (beyond technical training):

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Part 4. WORK GROUP SCALE

These questions are being asked to discover what you feel is the correct behavior for workers in the group that you supervise. Notice that the questions are all very similar. However, they are not the same. For the information you provide to be useful, it is important that you read and answer each question carefully, circling the number that best represents your feelings about the work group you supervise. Please answer each question by circling the number which best represents the degree to which you approve or disapprove of that statement.

	1 STRONGLY DISAPPROVE	2 DISAPPROVE	3 SLIGHTLY DISAPPROVE	4 NEITHER APPROVE NOR DISAPPROVE	5 SLIGHTLY APPROVE	6 APPROVE	7 STRONGLY APPROVE
IF A SUBORDINATE IN MY WORK GROUP ...							
1. ... always did his/her job poorly, I would	1	2	3	4	5	6	7
2. ... usually did his/her job poorly, I would	1	2	3	4	5	6	7
3. ... often did his/her job poorly, I would	1	2	3	4	5	6	7
4. ... occasionally did his/her job poorly, I would	1	2	3	4	5	6	7
5. ... infrequently did his/her job poorly, I would	1	2	3	4	5	6	7
6. ... hardly ever did his/her job poorly, I would	1	2	3	4	5	6	7
7. ... never did his/her job poorly, I would	1	2	3	4	5	6	7

Part 5. BELIEFS ABOUT EVALUATIONS

Use the rating scale listed below to respond to each of the statements in this section of the questionnaire. Write the number in the blank after each statement which represents the extent to which you agree or disagree with that item.

1	2	3	4	5	6	7
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

1. When assessing worker performance, a rater should ignore the difficulty of the employee's working conditions. _____

2. Employees who work under difficult conditions often perform well in spite of those conditions. _____

3. Employees who have to work under difficult conditions should be given high performance ratings because of those conditions. _____

Part 6. CONSTRAINT SCALE

The following items are designed to assess your views about the extent to which the average performance of your subordinates is inhibited by obstacles or constraints on their jobs. By constraints, we mean things such as inadequate tools, equipment, materials, supplies and parts; insufficient training, inadequate or incorrect information, poor scheduling, time pressures, a lack of cooperation from others, staffing shortages, undesirable working conditions, excessive "red tape," improper paperwork requirements, inconsistent policies and procedures, lack of needed transportation, or a lack of appropriate job authority. Think about the degree to which the constraining characteristics, on average, are present within your subordinates' work settings. For each of the following items, respond by using the scale listed below. Write the number in the blank after each statement which represents the extent to which you agree or disagree with that item. Try to be objective, and try to focus on the obstacles or constraints which occur, on average, on your subordinates' jobs.

1	2	3	4	5	6	7
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

1. My subordinates are often hindered from doing their jobs by obstacles or constraints which are beyond their control. _____

2. My subordinates' performance is clearly held down by various obstacles or constraints on their jobs which should be removed. _____

3. The Air Force has done everything possible to ensure that the talents and motivation of my subordinates are not hindered by obstacles or constraints. _____

Part 7. COMMENTS

Please use the space below to provide any further information you consider important regarding the material in this questionnaire.

APPENDIX F: PHASE III/IV

SPECIFIC PERFORMANCE SCALE: 902X0

Using the rating scales provided, we want you to rate the PERFORMANCE of the individual whose name is listed below. As a direct supervisor for this person, you are in the best position to understand the extent of contribution he/she makes to the Air Force through the fulfillment of his/her assigned job duties and responsibilities.

The evaluation you provide will be used as part of a major RESEARCH PROJECT being conducted under the auspices of AFHRL/MODL. Your ratings will NOT be used to make personnel decisions regarding this individual NOR will they be fed back to the person being evaluated or appear in his/her personnel file. Rather, they will be used to provide us with performance information needed to assist us in understanding the importance of other data that your subordinate has provided us about his/her job situation. This is our only opportunity to collect information about the effectiveness of your subordinate who is participating in this study. Therefore, it is important that you provide us with a meaningful, honest evaluation. Your responses will be confidential -- they will be used for research purposes only.

As you make these performance evaluations:

1. DO keep referring back to the definitions provided for each performance category.
2. DO consider the individual's performance during the LAST YEAR as the basis for your evaluation (less than a year if you have not observed this person for a full year).

and 3. DO NOT be influenced by PERSONAL FEELINGS about this individual which are not job-related. Personal feelings should be put aside. Your goal is to give as objective a rating as you can based on his/ her job duties and responsibilities.

INDIVIDUAL TO BE EVALUATED: ----------

SOCIAL SECURITY NUMBER: ----------

YOUR NAME: ----------

SOCIAL SECURITY NUMBER: ----------

RATINGS COLLECTED ON THIS FORM WILL BE USED FOR RESEARCH PURPOSES ONLY.

Privacy Act Statement. U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation. E.O. 9397, 22 Nov. 43, Numbering System for Federal Accounts relating to individual Persons. Information provided by respondents will be used solely for Air Force personnel research purposes. All information provided by individual respondents will be treated confidentially. Disclosure of this information is voluntary. No adverse action may be taken against any individual who elects not to participate. However, failure to provide information could detract from the Air Force's ability to improve its personnel policies.

SCN 83-7J Expires 1 July 1983

PART I: OVERALL PERFORMANCE EVALUATION

Instructions: We want you to consider the OVERALL performance of the individual being rated -- his/her overall job competence, efficiency, reliability, and so forth with regard to ALL aspects of the duties and responsibilities assigned. When making this evaluation, therefore, take into account ALL elements of successful job performance (such as knowledge of the job, ability to get the work done, both quantity and quality of the work output, interest in doing the job well, and all other factors that you consider important for successful job accomplishment). In short, consider how closely this individual approx'mates the IDEAL WORKER.

We want you to evaluate the OVERALL PERFORMANCE of this individual in two ways. First, we want you to evaluate this person's performance "given the conditions" under which he/she must perform it. Then, in a separate rating, we want you to evaluate his/her performance in an "absolute" sense. Each type of rating is more fully described below:

I. CONSIDERING EVERYTHING . . .

Consider how well this person does his/her job GIVEN THE CONDITIONS UNDER WHICH HE/SHE MUST PERFORM IT. That is, we want you to consider those special circumstances which help or hinder this person's performance. Some workers, for example, have very difficult tasks to work on, others have extremely helpful co-workers, and yet others must work under adverse work conditions. Such factors can influence how well the job gets done. Think about the special circumstances under which this person must work and take these special circumstances into consideration when making your first evaluation of his/her OVERALL PERFORMANCE. For example, if this subordinate works under very difficult conditions, you may wish to rate him/her higher than you would another subordinate who produced the same amount of work, but did so under conditions which were more helpful to them on their job. On the other hand, if special conditions exist which make it particularly easy for this subordinate to get his/her job done well, you may wish to rate this person lower than you would another subordinate who produced the same amount of work under more difficult conditions.

II. ABSOLUTE LEVEL . . .

We want you to once again rate the OVERALL PERFORMANCE of this individual. In this rating, however, we do NOT want you to "take everything into consideration" when making your evaluation. Rather, now we want you to make your evaluation of this individual's OVERALL PERFORMANCE in an ABSOLUTE SENSE. That is, if you were to ignore the special considerations and circumstances and focus SOLELY on how well the job really gets done, how good would you consider this person to be? For example, while he/she may well be doing a very good job "considering" the special problems that exist on the job, his/her ABSOLUTE level of performance may only be slightly above average. Thus, in this second rating, try to focus strictly on the ABSOLUTE level of this person's performance.

RATING FORM: Use the rating scale below to make your evaluation about the OVERALL PERFORMANCE of this person. Remember, you are to make TWO ratings -- the first reflects your evaluation of this person's performance "taking everything into consideration" and the second reflects your evaluation of this person's performance in an "absolute" sense.

The rating scale below allows you to evaluate this person by assigning a number from 0 to 10 to represent that evaluation. The numbers correspond to each of seven defined performance categories. Note that this scale was constructed to allow you to indicate any differences which you believe exist within three (SOMEWHAT BELOW NORMAL, MEETS NORMAL JOB REQUIREMENTS, and SOMEWHAT ABOVE NORMAL) of these broad performance categories. Circle the one number which corresponds to your evaluation of this person's performance on each of the rating scales.

RATING SCALE

RATING	CATEGORY	DEFINITION
0	EXCEPTIONALLY POOR performance	Extremely poor performance; contributes practically nothing to the unit's mission.
1	WELL BELOW NORMAL job requirements	Unsatisfactory performance; falls short of performance requirements.
2 3	SOMEWHAT BELOW NORMAL job requirements	Marginal performance; falls short more often than desired and almost never exceeds requirements.
4 5 6	MEETS NORMAL JOB REQUIREMENTS	Competent, satisfactory performance; occasionally exceeds requirements and occasionally falls short.
7 8	SOMEWHAT ABOVE NORMAL job requirements	Above average performance; generally exceeds performance requirements
9	WELL ABOVE NORMAL job requirements	Exceptional performance; consistently exceeds performance requirements.
10	EXCEPTIONALLY GOOD performance	Excellent performance; better than 99% of all others who have held this job.

1. CONSIDERING EVERYTHING, the OVERALL PERFORMANCE of this person is...

EXCEPTIONALLY POOR	WELL BELOW NORMAL	SOMEWHAT BELOW NORMAL		MEETS NORMAL JOB REQUIREMENTS			SOMEWHAT ABOVE NORMAL		WELL ABOVE NORMAL	EXCEPTIONALLY GOOD
0	1	2	3	4	5	6	7	8	9	10

2. In an ABSOLUTE SENSE, the OVERALL PERFORMANCE of this person is...

EXCEPTIONALLY POOR	WELL BELOW NORMAL	SOMEWHAT BELOW NORMAL		MEETS NORMAL JOB REQUIREMENTS			SOMEWHAT ABOVE NORMAL		WELL ABOVE NORMAL	EXCEPTIONALLY GOOD
0	1	2	3	4	5	6	7	8	9	10

PART II: SPECIFIC PERFORMANCE RATINGS: MEDICAL SERVICES SPECIALIST (902X0)

General Instructions: Now that you have evaluated the overall performance of this individual, we want you to provide more detailed information by rating his/her performance with regard to SPECIFIC JOB DUTIES. This information will provide a clear picture of the strengths and weaknesses of this individual. Therefore, please consider each of the job duties separately, in its own right, when making your ratings.

As before, you will use the same 11-point scale and make TWO ratings for each of the separate job duties -- the first reflects your evaluation of this person's performance in that category "taking everything into consideration" and the second reflects your evaluation of this person's "absolute level of performance." In other words, one rating asks you to evaluate this worker's performance after considering the problems and opportunities that this person has at work. The second rating asks you to evaluate the degree to which this subordinate gets the job done, regardless of any special circumstance on this person's job. For example, you might give this worker a "6" on the rating scale that asks you to "consider everything" (because he/she worked very hard and did fairly well in spite of the difficult work conditions he/she had to deal with), but only a "4" on the "absolute performance" rating (because he/she did not, in fact, get the job done).

Specific Instructions: Use the rating scale below to evaluate this person for each of the SPECIFIC JOB DUTIES described. In the space to the right of each statement, write the one number which represents your evaluation. If any statement does not apply to the person being rated, write the letters N/A in the blank space to indicate that it does not apply.

RATING SCALE

RATING	CATEGORY	DEFINITION
0	EXCEPTIONALLY POOR performance	Extremely poor performance; contributes practically nothing to the unit's mission.
1	WELL BELOW NORMAL job requirements	Unsatisfactory performance; falls short of performance requirements.
2 3	SOMEWHAT BELOW NORMAL job requirements	Marginal performance; falls short more often than desired and almost never exceeds requirements.
4 5 6	MEETS NORMAL JOB REQUIREMENTS	Competent, satisfactory performance; occasionally exceeds requirements and occasionally falls short.
7 8	SOMEWHAT ABOVE NORMAL job requirements	Above average performance; generally exceeds performance requirements
9	WELL ABOVE NORMAL job requirements	Exceptional performance; consistently exceeds performance requirements.
10	EXCEPTIONALLY GOOD performance	Excellent performance; better than 99% of all others who have held this job.
N/A	Not Applicable	This item does not apply to this person's particular job

SPECIFIC PERFORMANCE RATINGS: MEDICAL SERVICES SPECIALIST (902X0)

RATING SCALE

EXCEPTIONALLY POOR	WELL BELOW NORMAL	SOMEWHAT BELOW NORMAL	MEETS NORMAL JOB REQUIREMENTS	SOMEWHAT ABOVE NORMAL	WELL ABOVE NORMAL	EXCEPTIONALLY GOOD	
0	1	2 3	4 5 6	7 8	9	10	N/A

CONSIDERING EVERYTHING:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment. ____
2. Performing administrative or materiel procedures. ____
3. Preparing for nursing procedures. ____
4. Performing clinical or emergency room procedures. ____
5. Performing ward services. ____
6. Preparing for and administering injections. ____

IN AN ABSOLUTE SENSE:

1. Performing nursing procedures or assisting physicians in diagnosis or treatment. ____
2. Performing administrative or materiel procedures. ____
3. Preparing for nursing procedures. ____
4. Performing clinical or emergency room procedures. ____
5. Performing ward services. ____
6. Preparing for and administering injections. ____

PART 3. EFFORT SCALE

In this section of the evaluation, we want you to focus your attention on the EFFORT displayed by the person you are evaluating. Sometimes effort appears to make a difference in people's performance and sometimes it doesn't appear to make any difference at all. In this section, we want you to focus on this individual's effort (how hard he/she works), and not on his/her performance.

Below you will find a series of statements regarding the effort, as opposed to the performance, of people at work. Use the rating scale below to respond to each item. On the line next to each item, write the number of the response which best describes the degree to which you agree or disagree with that item.

1	2	3	4	5	6	7
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

WHEN THERE IS PLENTY OF WORK TO DO...

1. this individual usually works at 100% of his/her capacity. ____
2. this person could work a lot harder. ____
3. I can always count on this subordinate to exert high levels of effort. ____
4. this person seems to "give up" and not try hard. ____
5. this person is one of the hardest working individuals I have ever seen. ____
6. this person does as little as necessary in order to just get by. ____

PART 4. EXPERIENCE AND PERSPECTIVE SCALE

For questions 1-3, please respond by using the scale listed below each question. Circle the letter of the response alternative which best represents your point of view.

1. In general, how important do you feel this employee's personal characteristics (such as abilities, attitudes, effort, etc.) are as possible causes of his/her performance?

   a. Extremely unimportant
   b. Unimportant
   c. Neither important nor unimportant
   d. Important
   e. Extremely important

2. How much experience have you had in actually doing the type of job performed by this employee?

   a. No experience
   b. Very limited experience
   c. Some experience, but not a great deal
   d. Quite a bit of experience
   e. A great deal of experience

3. Overall, how important do you feel the characteristics of the work situation (such as working conditions, availability of equipment and materials, etc.) or luck are as causes of this employee's performance?

   a. Extremely unimportant
   b. Unimportant
   c. Neither important nor unimportant
   d. Important
   e. Extremely important

Please respond to the following question by filling in the information requested in the blank spaces provided.

4. How many years and months of experience do you have actually doing the same job duties performed by the employee you are evaluating?

   ___Years ___Months

APPENDIX G: Phase III/IV Frequency Distributions for Constraint Dimensions

Constraints	Frequencies							
	1.00-1.50	1.51-2.00	2.01-2.50	2.51-3.00	3.01-3.50	3.51-4.00	4.01-4.50	4.51 5.00
Total Constraints	210	234	170	80	36	11	7	0
Training	236	227	79	104	25	50	13	14
Materials & Supplies	247	212	79	109	30	52	6	13
Time	333	210	66	73	20	29	8	9
Tools & Equipment	321	164	83	78	45	27	9	21
Planning/Scheduling of Activity	413	153	65	52	21	18	11	15
Cooperation from Others	302	142	96	73	52	40	23	20
Personnel	387	109	73	62	44	30	12	31
Physical Working Conditions	401	65	26	49	16	58	13	120
Policies & Procedures	332	156	87	64	40	28	19	22
Red Tape	485	102	51	46	12	22	12	18
Transportation	561	77	25	26	16	19	4	20
Job Relevant Authority	210	182	71	135	36	66	21	27
Job-Related Information	361	132	104	74	45	12	14	6
Forms	459	149	37	41	15	22	4	21

Note: Responses reflect the average score for each dimension on the 5-point rating scales utilized.
N = 748.

APPENDIX H: PHASE III/IV SPECIFIC PERFORMANCE SCALE JOB DUTIES FOR EACH AFS

1. Pneudraulic Specialists (AFS 423X4):
   (1) Removing, replacing, and servicing aircraft pneudraulic systems and components.
   (2) Performing operational check of aircraft pneudraulic system.
   (3) Performing in-shop maintenance of aircraft pneudraulic components.
   (4) Inspecting aircraft installed pneudraulic systems.
   (5) Other important duties (e.g., troubleshooting aircraft pneudraulic systems, maintaining shop and aerospace ground equipment).
2. Fire Protection Specialists (AFS 571X0):
   (1) Performing general fire protection duties.
   (2) Performing fire alert center duties.
   (3) Fighting aerospace vehicle fires.
   (4) Maintaining equipment.
   (5) Other important duties (e.g., fighting structural and actual cover fires, inspecting fire alarm systems, inspecting for fire hazards).
3. Fuel Specialists (AFS 631X0):
   (1) Performing distribution functions.
   (2) Performing storage functions.
   (3) Performing accounting and administrative functions.
   (4) Performing quality control functions.
   (5) Other important duties (e.g., performing liquid oxygen, missile propellant, and cryogenic fluids functions).

4. Materiel Facilities Specialists (AFS 645X1):

   (1) Delivering materials and performing general facilities maintenance.

   (2) Issuing, shipping, storing, and transferring supplies and equipment.

   (3) Receiving property.

   (4) Preparing for inventory of equipment and supplies.

   (5) Other important duties (e.g., operating computer support equipment, performing maintenance support tasks, maintaining records and files).

5. Personnel Specialists (AFS 732X0):

   (1) Performing general personnel, personal affairs, career advisor or Air Force recruiter assistance program (AFRAP) functions.

   (2) Performing outbound assignment functions.

   (3) Performing records unit functions.

   (4) Performing separation and retirement functions.

   (5) Other important duties (e.g., performing manning control unit functions, performing personnel readiness unit functions).

6. Security Specialists (AFS 811X0):

   (1) Performing general security and law enforcement tasks.

   (2) Maintaining base/weapons storage/aircraft system security.

   (3) Maintaining small arms and equipment.

   (4) Maintaining missile systems security.

   (5) Other important duties (e.g., participating in disaster control, controlling personnel in custody).

7. Medical Specialists (AFS 902X0):

(1) Performing nursing procedures or assisting physicians in diagnosis or treatment.

(2) Performing administrative or materiel procedures.

(3) Preparing for nursing procedures.

(4) Performing clinical or emergency room procedures.

(5) Performing ward services.

(6) Preparing for and administering injections.

END

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